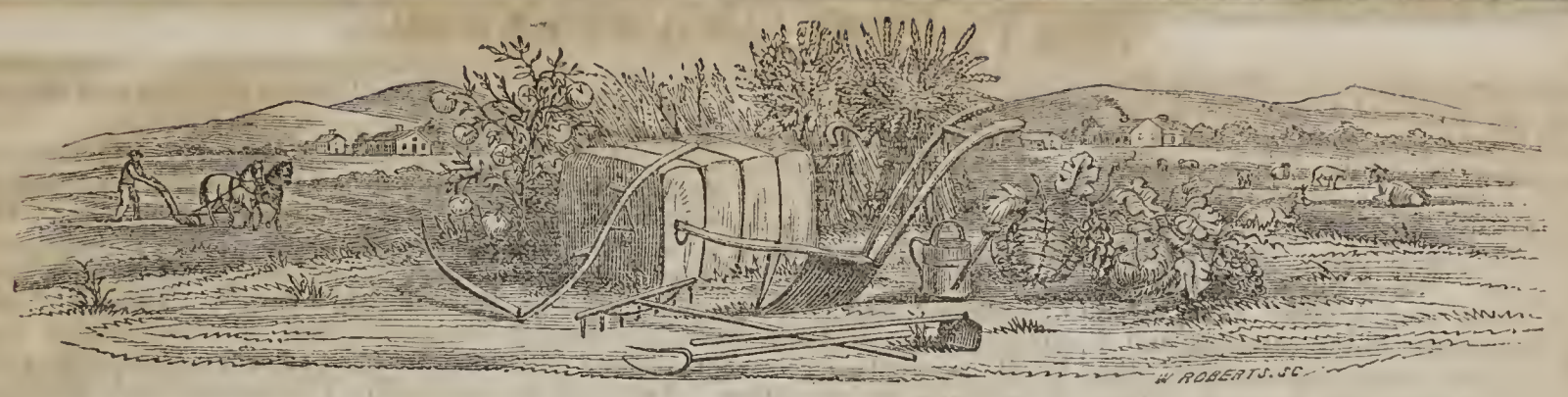

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Letter from Henry S. Randall, Esq. to Col. R. F. W. Alston.

PROFITS OF SHEEP HUSBANDRY IN THE SOUTHERN STATES—BY GIVING TO AGRICULTURE A MIXED AND CONVERTIBLE CHARACTER—BY FURNISHING THE RAW MATERIAL FOR THE MANUFACTURE OF DOMESTIC WOOLLENS.

[CONCLUDED.]

Here, perhaps, the discussion of this topic in connection with the subject matter of these letters should terminate; but I am unwilling to abandon it without making a few practical suggestions as to the rotation which would be found most profitable at the South—more particularly on the valuable cotton lands, which are suffering most for the want of it. It is manifestly impossible to lay down any rule or rules on this subject, which can or should be rigidly acted upon, in all instances. Leading principles can only be declared, and, if correct, the intelligent man can always vary their application so as to meet the exigencies of his particular case.

First, I should consider it indispensable on all cotton (or tobacco) lands,* under all circumstances to keep one-third of them in pasturage, to insure the proper amount of manure, over and above cotton seed, and such occasional supplies of swamp mud and marl as might be obtained at spare intervals—and all other incidental manures. Another third, I believe, should be generally devoted to grain for bread stuffs, for fattening the necessary amount of bacon, and for the winter forage of horses, mules, swine, &c. Unless the horses and mules, and, perhaps I should add, the cows, were wintered entirely, or in great part, on grain and the offal of the grain crops, one-third of the *cultivated land* in grass, would not support animals enough to produce the manure requisite for two-thirds in cotton and grain. But in making the above division, I spoke only of the arable lands fit for the growth of cotton. Most plantations have poor, or swampy, or rough lands, which would most profitably be kept permanently in grass, and these would supply the deficit. The remaining third of the arable lands might be devoted to cotton, or, in the tobacco region, to tobacco.

By the course above proposed, the cotton, (or tobacco) and wool would be made the saleable products. The grain, grass, dairy products, bacon, &c., would be consumed on the plantation. This is as it should be. European famine has given a stir to the latter products this year, (and it may for a year more,) in the Southern markets; but with the ordinary European demand, the old Southern Atlantic States cannot, as we have seen, compete at a profit with the commodities, which debouch through the Mississippi, the St. Lawrence, and the northern canals.—With the *two wools*, as they are sometimes called the "vegetable and animal," these States can undoubtedly sustain themselves against the pressure of any outward competition.

Such a division of crops as the one above proposed, could be effected by a six course system of rotation. Let us suppose the land of the plantation fit to grow corn and cotton, divided into six equal fields. I then propose the following rotation:

1st year, Grass depastured.	1st year, Grass depastured.	1st year, Cotton.
2d " do do	2d " Cotton.	2d " Cotton with yard manure, &c.
3d " Cotton.	3d " Cotton with yard manure, &c.	3d " Corn with peas.
4th " Cotton with yard manure, &c.	4th " Corn with peas.	4th " Small grains with grass seed.
5th " Corn with peas.	5th " Small grains with grass seed.	5th " Grass depastured.
6th " Small grain with grass seed.	6th " Grass depastured.	6th " do do
1st year, Cotton with yard manure, &c.	1st year, Corn with peas.	1st year, Small grains with grass seed.
2d " Corn with peas.	2d " Small grains with grass seeds.	2d " Grass depastured.
3d " Small grains with grass seed.	3d " Grass depastured.	3d do do
4th " Grass depastured.	4th " do do	4th " Cotton.
5th " do do	5th " Cotton.	5th " Cotton with yard manure, &c.
6th " Cotton.	6th " Cotton with yard manure, &c.	6th " Corn with peas.

Supposing each of these fields to contain 50 acres, this would give 100 acres of grass, 100 of cotton, and 100 of grain (50 of corn and 50 of small grains) annually.

By this course all the hauled* manure, each year would be given to one-sixth of the land, and consequently the same field would not receive it but once in six years—yet *every crop* would be *adequately manured*. The first cotton crop would receive an ample amount from the grass roots and the droppings of animals for two years; the second, from the hauled manure; the corn, from the manure left by the previous crop, and if needed, by a small amount of cotton seed, ashes, (or some other mineral fertalizer,) in the hill; the small grain crop would be amply manured by the peas sown with the preceding corn; and the land would go back

*I have not included the rice lands, because being deep beds of alluvial deposits, composed in a great measure of organic matter, and being susceptible of irrigation, they will not wear out like ordinary soils, and stand less in need of rotation in their crops.

*I mean by this the manure from *every* source which is *carted* upon the land in quantity, as contradistinguished from that which is dropped there by animals, made by plowing under vegetables, or carried on in small quantities to drop in the hill, &c.

into grass in excellent "heart," and if the previous tillage was what it should be, entirely free from weeds. The corn might intervene between the two cotton crops, and thus remove the objection which exists against taking two crops of the same kind in succession. But I placed cotton 4th, because there should come a manured crop at this period of the rotation, and I thought it better to give the manure to the more valuable crop, and because cotton as the 5th crop would not admit of the cultivation of the pea, to provide manure for the small grain succeeding. The rotation might be thus varied, however, if circumstances should seem to render it desirable.

I have put down no meadow in the rotation on the *arable* lands. But I believe the growth of hay to a certain extent, not only to supply any ordinary deficiency in winter feed beyond the quantity furnished by the usual sources—but to guard against contingencies, would be good economy in all cases. All farm animals must be well wintered, to give a profiable return in summer; and those occasional scarcities of fodder always liable to overtake the farmer, should be providently guarded against. It is never considered poor economy, in the North, to have a few tons of hay to summer over. The necessary meadows for the plantation might be made on some of the less arable lands before referred to—and, when the tillage lands are in an uncommonly fertile state and pasturage plenty, it *would do* to mow one of the grass crops (the second one) of the above rotation, though, if avoidable, I should think the other course entirely preferable.

On poorer lands—the poorest class which can be profitably devoted to cotton growing—I would propose a five-shift course, as follows:

1st year Grass depastured.
2d " do. do.
3d " Cotton.
4th " Corn with peas.
5th " Small grains with grass seed.

The manure to be given to the third or fourth crop, according to circumstances, or divided between them.

On lands of a still inferior grade, but which it is expedient to plow at intervals, I would propose the following:

1st year, Grass depastured.
2d " do do
3d " do do
4th " do do (or mown.)
5th " Corn with peas.
6th " Small grains with grass seed.

The number of years depastured to depend upon fertility—the poorer the land, the longer it should be kept in pasture.

The following is the rotation introduced by Col. Taylor north of the cotton growing regions:

1st year, Corn.
2d. " Wheat and clover sown—if too poor for wheat, left at rest and not grazed.
3d " Clover (and weeds) not mown nor grazed.
4th " Clover not mown nor grazed.

Of this Mr. John J. Thomas, one of the Editors of the Albany Cultivator, very justly remarks:

"It was materially opposed to the principles of good husbandry in several respects It furnishes vegetable manure only in the land. A large portion of the value of this vegetable growth was lost, by dissipation into the air, during its decay. The returns from the land were necessarily small, as only two years out of four produced crops for harvesting. And it greatly increased the labors of tillage, by the increase of noxious weeds."

Had this clover been fed off by sheep, a portion of the above objections would have been inapplicable, and there would be no danger of the corn leaving the soil too impoverished for wheat particularly if peas were sown with the former, to be plowed under. A crop of *weeds* is of all others the most to be avoided, as the seeds deposited by it will continue to sprout for years with the subsequent tillage crops, rendering them foul and difficult of cultivation.

I may be in a profound error, but I cannot but believe, after carefully studying Southern Agriculture, and the circumstances which invest it, that by adopting the sixth-shift system of rotation above recommended, or something analogous to it, on the cotton lands, the desideratum expressed in Judge Seabrook's Report will be attained. More cotton will ultimately, if not even now, be produced from less land: the other necessaries of life will become mainly the product of the plantation; a new staple will be introduced to employ the surplus capital, as profitable at least in its acreable products as cotton, and tending to the constant reparation as cotton tends to the constant waste of the fertility of the land.

I will not tire you, Sir, with a comparison of the relative profits of wool and cotton growing. On looking over the answers of Southern gentlemen to Mr. Walker's Circular, (1845,) I find that the stated profits on cotton in the Atlantic and Gulf States, west of Louisiana, range from 1 to 8 per cent. on capital invested —the average of all the statements being about 4½ per cent.!

I may remark incidentally that in your own able replies to that Circular, you set down the profit of rice growing between 1842 and 1845, at 7½ per cent.; for the ten preceding years, at "about 8 per cent."

A reference to Letter V. will show you how these profits compare with those of wool-growing. Admitting the accuracy of the data therein given, there is no *very great* difference in the cost of growing a pound of wool and a pound of cotton!

We come now to the *fourth* point of view in which we are to regard the profits of sheep husbandry in the Southern States —"whether independent of preceding considerations, and even if the staples furnished by sheep husbandry proved no more profitable, in direct returns on capital invested, than some of the present staples, it would not be better economy, on the whole, for the South to produce the raw material and manufacture domestic woollens, particularly for the apparel and bedding of slaves, than to be dependent for them on England and Massachusetts?"

The woolen apparel and bedding of slaves, when no part of it is manufactured on the plantation, costs about $6 per head per annum. The blankets imported from England weigh about 4½ lbs. and cost a little over $3. The Welsh plains, imported from England, weigh usually not far from 13 ounces per yard, and cost about 55 to 70 cents; and the Chelmsfords, a heavy, coarse article, from Massachusetts, from 50 to 58 cents.

Now what is the cost of manufacturing (including wool and every other expense,) cloth of the same amount of stock, and better quality, than Welsh plains? To the present weight of the cloth per yard add one-third, and you have the weight of the wool in the fleece—as bought of the farmers.* If, then, the Welsh plains weigh 13 ounces per yard, they required 17½ ounces of fleece-wool as stock. Wool of the quality worked into "plain cloth" or "sheep's gray," in this State, (New York,) many shades better in quality than the stock of Welsh plains, has averaged from June to December, 1846, from, say, 20 to 22 cents a pound—or, if pulled from the pelts of slaughtered sheep, as is the case with large quantities of it worked into these cloths, it did not, during the same period stand the purchaser-in to exceed more than 18 cents per pound.—Assume the average to be 21 cents per pound, and the stock of a yard of these cloths (17½ ounces) would cost 22¾ cents.

You are familiar with the character of the "sheep's grays" of New York. They are worn almost universally by our farmers. Of the twenty-five thousand men you saw at the State Fair at Rochester, at least three-fourths of them ordinarily wear this quality of cloth for pantaloons, and say one-half of them for coats. Its ordinary weight is from that of the Welsh plain to 16 ounces per yard, and its style and expense of manufacture are superior to those of the former. It can be manufactured including use of machinery, &c., and every process after the wool is received in the fleece, to fitting it for market, for *eleven cents per yard!* A merchant in this State owns a manufactory, employing $25,000 or $30,000 of capital, which turns off from 500 to 600 yards of cloth per diem—the fleece wool being converted into finished cloth in eight days.—His whole expenses, including use of manufactory, averages, *according to his own statements*, not to exceed the above named price per yard. Add this sum to the cost of wool, and cloths containing an equal quantity and quality of stock with Welsh plains would cost 33¾ cents per yard; and you therefore pay for this class of cloths about *one hundred per cent.* beyond the first cost for transportation, duties, and manufacturer's profits. The latter, of course, absorbs most of the immense sum thus paid, or rather *thrown* away, annually by the Southern States. The Chelmsfords, and various other woolen goods imported by you, are probably manufactured at nearly equal profits.

*After being washed in the ordinary manner on the back of the sheep.

Is it singular, then, that "*acres* of manufactories" are now in the process of erection in the North? or that existing establishments are *declaring* dividends of from ten to fifteen per cent.?*

But I have not done with the data of manufacturing. The manufacturer above alluded to has, to my certain knowledge, exchanged "sheep's grays" requiring a pound of stock per yard, for wool of the same quality as the stock, giving a yard of cloth for 1¾ pounds of wool. Calling this wool 21 cents per pound, the cloth would thus cost the purchaser 36¾ cents per yard.

Any of the manufactories doing custom work will manufacture these goods "at the halves," so that a yard requiring a pound of stock would cost two pounds of wool, or 42 cents. That as heavy as Welsh plains would thus cost 45½ cents, it being from 19½ to 24½ cents per yard *less than you now pay*. Yet here the manufacturer of *custom work* admits the sufficiency of the profit, by asking no more.

Blankets are of still coarser wool, having the appearance of Smyrna, or inferior South American. They are not "sheared,"† which diminishes the waste. Neither do they need dyeing matter. But independent of these considerations, calling cost of stock per pound, and the waste from all causes the same, 6 lbs. of fleece wool would make a blanket. To the wool costing 21 cents a pound add 11 cts. per pound (of the stock) for manufacturing, and the actual cost of the blanket is $1 92. Have them manufactured by the halves, and they would cost you 12 lbs. of wool each, or $2 52.

I have in the previous estimates, based my calculations on the *market price* of the lower quality of medium wools.* But there is another, and a most important view of the subject. It has already been shown that the South can produce wool, to any desirable extent, at a sum not exceeding 8 cents per pound—and in favored localities, at a much lower rate. By the exchanging system (wool for cloth) you would get a yard of cloth equaling the Welsh plain in stock, and superior in quality, for two lbs 2¾ oz. of wool costing the producer just 17½ cents! A blanket weighing 4½ lbs. would be obtained for 12 lbs. of wool, costing 96 cents!

Does this sound a little like dreaming, Sir? I ask you to carefully examine the premises, and see if there is any escaping from these conclusions!

Will the South continue to slumber on, thus throwing away the fruits of her industry? Do you tell me her people know nothing about manufacturing, and have no taste for it? The necessary knowledge is as readily attained by a Southern as a Northern man; and when that is attained, and there is a prospect of *profit* ahead, the *taste* will not long be wanting! You have the capital: you have natural facilities to an unbounded extent both to propel the machinery and produce the staple. What more do you want? What more can you ask? A joint stock association of planters, at any suitable point, might cause a manufactory to be erected worth say 25,000, under the direction of a skilful and experienced machinist. This would turn off, say, 500 yards per diem. If the machinery was in all respects good, and the water power sufficient and unfailing, a competent Northern manufacturer could be obtained (if desired), to take the establishment, furnishing hands, &c., and work the wool furnished him into cloth of the kind before described—containing about the same stock with Welsh plains, and fitting it for market, for eight or nine cents a yard.† I know of a manufacturer, at no great distance from me, who thus takes a manufactory worth perhaps 8,000 or 10,000, and furnishes the cloth (of the above stamp,) fitted for market at nine cents a yard, the owner furnishing the wool, the use of the manufactory, and the dyeing matter.‡ The supply of water at this establishment fails during two or three months each year: and one competent to judge informs me that seven cents would be better pay if the machinery could be kept in motion the year round. It is possible that it would cost rather more at the South to provide the necessary fixtures, obtain machinery, etc.; and it would also cost more, for a period, to carry on manufacturing, from the greater difficulty of obtaining operatives in case of loosing any of those attached to the establishment. All these disadvantages, however, not of much importance at the first, will soon disappear. Slaves should, as rapidly as the nature of the case admits of, be converted into operatives, and when the number becomes once adequate to the end, it might be indefinitely multiplied, without those embarrassments which so commonly attend the attempt to mingle white and black labor.

It is cheaper to manufacture by hand,* (with the exception of carding, fulling, and dressing,) than to purchase your slave cloths at present prices, *if slave costs no more than free labor.*

On the average, 15 knots of *warp* and 15 of *filling*, make one yard of flannel about 5 quarters wide. The ordinary shrinkage of this, in fulling it into cloth, is one quarter in length and width. It would therefore require 40 knots to make a yard of fulled cloth. The carding here in small parcels costs 3 cents per pound, and 18¾ cents per pound for fulling, dyeing and dressing. In considerable quantities, the carding can be hired done for 2 cents per pound, and the other process for one shilling per yard. Spinning (by considerable quantities and for "cash-pay,"†) can be hired for 7 cents a *run* (20 knots) for warp, and 5 cents for filling—averaging 6 cents for both. Weaving can be hired done for 6 cents per yard (of flannel), which brings it, in the dressed cloth, at 8 cents per yard. The account would then stand thus:

	Small parcels	*Large parcels.*
1 lb. of wool	21 cents	21 cents
Carding same	3 "	2 "
Spinning	14 "	12 "
Weaving	10 "	8 "
Dyeing, fulling & dressing	18¾ "	12½ "
Total	66¾ cts.	55½

Making 45† cents the price of a yard of domestic cloth, estimating the wool at market price: estimating the latter at cost of production (8 cents), the price of the finished cloth would be 42½ cents per yard; it is a better article for wear than

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* I did contemplate an enumeration of the new woollen manufactories now building or in contemplation, within my knowledge, in this State and New England; but will mention but a few of the most important ones. The Bay State Mills, now in process of erection in the new city of Lawrence, Mass., will work up 2,000,000 lbs. of wool per annum. *One* of the mills, 200 feet long and six stories high, will go into operation this summer. The machine shop, wool house, etc., (the mere offices,) will be including wings, *thirteen hundred feet* in length, and three stories high. Their very *sewer* will cost $25,000! A splendid steam mill has just gone into operation in Utica, in this State, which will work up 1,000,000 lbs. of wool per annum. Another of the same size is in contemplation, in Utica; another in Syracuse; another in Auburn, &c.! There never was a time when American manufactures stood on a firmer basis, or were making better profits *with a prospect of having them continuous.* This is *conceded* by the *ablest of the manufacturers themselves,* as I shall, in the proper place, show.

† After a sufficient number of fibres have been torn up from the threads by the teazles or cards of the "gig-mill" to form a sufficiently thick nap on the surface, these fibres are cropped or "sheared" by a machine for that purpose; and in superfine cloths the process is several times repeated, each time cutting off an additional portion of fibre, which is called "flocks." A dishonest custom now prevails among *some* manufacturers of working these flocks again into the body of the cloth to give them weight, denseness, and apparent firmness. By this means the gigging and shearing process can be continued on thinnish cloths until a beautiful surface is obtained, without the additional thinness and lightness consequent thereon being apparent to any but a practiced eye. Sheep's grays and other coarse cloths are gigged and sheared but slightly. In some manufactories the former process is altogether omitted, and the cloth is simply "brushed" prior to shearing. Such cloths are stronger, but do not look as well.

* Say of the quality of common South-Down and Native and Long wools, with a sufficient dash of Merino blood in the last to make them carding wools, and bring them to about the same fineness with the first named.

† I have no doubt it could be done at a fair profit in the North for 7 cents per yard. I am understood, of course, to mean that the manufacturer pays no rent, insurance, nor for repairs. The stockholders furnish the wool, which is worked up by the former, at the stipulated price.

‡ Modern ingenuity has reduced the expense of this to a mere trifle. Most of the "sheep's grays," you have observed, are of ferruginous hue. Those of this color are dyed principally by *tan bark*—the bark of the hemlock (*Abies canadensis*), which is sold here at $1 75 to $2 a *cord!*

* I am aware that to "manufacture" *is to make by hand*, but I use the word in its popular and more general signification. It would have been better to have compounded a word from the Latin *machina* and *facto* (machinfacture?) to signify *made by machinery*, and thus expressed the two ideas by properly derived and definitive words.

† This word "cash pay" is one of mighty import in the regulation of prices in the interior, where a very general (but now decreasing) system of barter prevails, and under which Wealth, too often dictates to Want *what* it shall receive for its labor, and also prescribes the *prices* of the commodities in which it pays.

either the Welsh plains or Chelmsfords.*

$1,500 will set up a wool carding and cloth-dressing factory, which, with three good hands, will turn off 50 yards of cloth per diem. By table I. it appears that in 1829 there were but 114 of these factories south of the Potomac and west of the Mississippi, doing an annual business of $320,938, while in the single State of New York there were 323 factories, doing an annual business of 3,537,337! Of the 114 Southern factories 66 were in the States of Kentucky and Tennessee; 41 in Virginia; 3 in each of the Carolinas; 1 in Georgia, and in the remaining four, *none!*

The number is decreasing in New York, as manufactories of the common fabrics, worn by farmers and other laboring men, are increasing in every direction—many of them doing custom work either at the halves, or at a fixed sum per yard—and all of them exchanging cloth for wool.—By either of these methods, the cloth can be obtained as cheaply, perhaps cheaper than to manufacture it in families. But circumstanced as you are at the South, you can, as before asserted, manufacture more cheaply by hand (excepting carding, fulling and dressing), than to import your slave cloths at present prices, if provided with factories to perform the excepted processes. Where the institution of slavery exists, and where spinning, weaving, etc., can be done in those intervals of bad weather when the time of laborers would otherwise be entirely thrown away, it is doubtful whether any extension of even the coarse cloth manufactories would, or ought to, in an economical point of view, banish the home made article. If we count the slave labor thus *saved* one-half the value of free labor, and dispense with the fulling and dressing‡ (which we usually dispensed with in manufacturing *domestic* slave cloths, in the interior of the Carolinas, Georgia, etc.), the cloth would cost but 20 cents a yard, and the dyeing might carry it to 22 cents. Let one half be made of cotton and the cost will be still farther reduced.

* Home-made fabrics are usually stronger and wear better than those made by machinery, (or, in other words, *manufactured* cloths outwear *machinifactured* ones!) but this is not necessarily so. The several processes *can* be done undoubtedly, and probably, generally *are* more perfectly by machinery than by hand. But in machine made cloths the yarn is comonly spun finer, so there is less stock in a yard. And they are submitted to processes, described in a previous Note, which farther impair their strength.

‡ But still you want carding machines, to card the wool; for, by hand, it is a slow and expensive process.

Principles of Manures.

BY PROF. J. P. NORTON.

Analytical Laboratory, Yale College,
New-Haven, Conn., Jan. 7, 1850.

Eds. Cultivator—Having mentioned in my last the subject of manures, as that which should be the topic of this and succeeding communications, I now proceed to direct the attention of your readers to the true signification of the word manure in its various applications. This may seem to many a very unnecessary labor, but I hope to convince them that it is not.

Under the grand head of manures, have, in these modern times, come to be included a great variety of substances, may be divided into three classes—animal vegetable and mineral manures. In mentioning any of them, we mean something that by itself, or by its action upon other bodies, imparts fertility to the soil, increasing, in other words, its ability to bear good crops. More than this, every farmer who reads attentively, has learned that the efficacy of a manure consists in its supplying to the plant, directly or indirectly, certain substances which it needs to promote its growth. Manures are in fact, food for plants.

This is a great advance in knowledge, but is not, by any means, all that ought to be known. As we proceed a step or two further in our inquiries, we find that plants are differently constituted, and that manures have an almost infinite variety in their composition. The subject thus becomes difficult; but we are enabled at once to draw the important conclusion that different plants require different manures; that the manure which highly benefits one crop may even injure another.

We are thus led naturally to the conviction that some classification of fertilizing substances is necessary—that some rules are demanded by means of which the farmer can at least approximate to the value of any manure of which he knows the composition or the leading ingredients.—He understands for instance, that guano is valuable, and knows what are its effects upon his crops; but is he aware upon what, in the guano, those powerful effects depend? Could he, if an unknown substance equally rich in its composition were presented to him and the names of the elements which it contained given, say that it was worth much or worth any thing as a manure? I feel quite sure from my own experience, that the majority of our farmers, notwithstanding all that has been written on these subjects, would have to answer this question in the negative.

It is for such reasons that I am about to attempt a plain statement of some points connected with this important branch of agricultural knowledge, in the hope of making them clear and intelligible to at least a part of your readers.

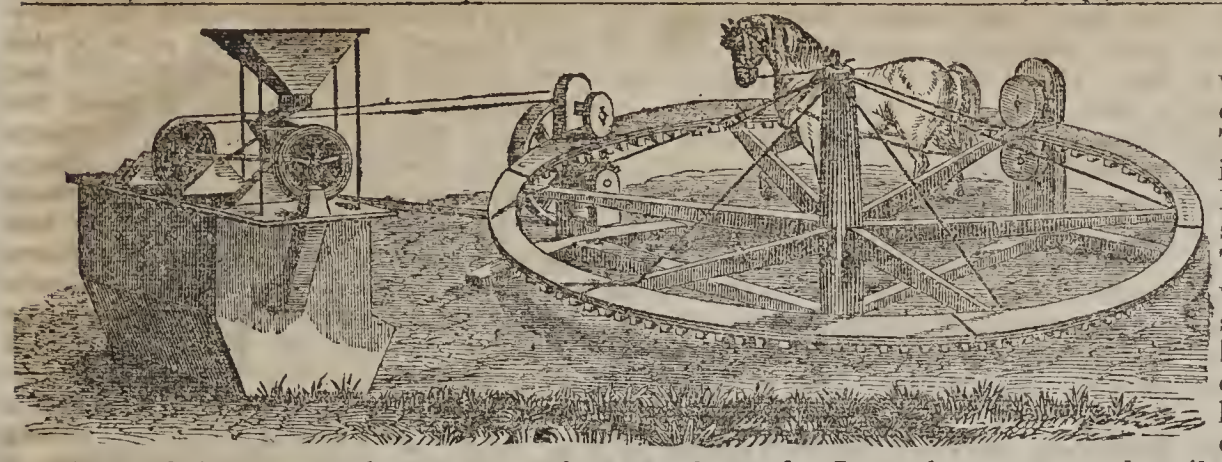
I have already mentioned three great divisions—animal, vegetable and mineral manures. In the two first of these, are two classes of bodies—those which burn away by heat, called organic bodies, and the ash which remains after burning, consisting of mineral or inorganic bodies; of these last, the latter division of the three, the mineral manures, are entirely composed. The inorganic part in animal or vegetable manures, is usually quite small; as they are of course derived from the death and decay of plants and animals, it follows that in those forms of organized existence, the organic part also, as a general rule, predominates. Although then in these manures, the organic part is small, it is enough to supply the wants, by furnishing the materials for both classes of bodies which they contain, the combustible and the incombustible, the organic and the inorganic. The mineral manures on the contrary, can for the most part only nourish and increase the inorganic part of plants, and are consequently more limited in their application.

It is next of importance to know what are the substances thus furnished by the various classes of manures. All the organic parts of plants and animals, in the immense variety of their forms, shapes and sizes, and consequently all of that part in the numerous manures which are employed by the husbandman, contain but four substances, named Carbon, Hydrogen, Oxygen and Nitrogen. The first of these, Carbon, is a solid, of which charcoal, black lead, &c., are examples; the others are gases or kinds of air. This is one of the most striking facts connected with modern chemistry, that all forms of organized life should be ultimately resolved into these four bodies, excepting alone the small portion of ash which most of them contain. This ash, the inorganic or mineral part of plants, animals and manures, consists of more numerous substances; they form, however, not by any means a long list. They are potash, soda, lime, magnesia, iron, silica, chlorine, sulphuric acid and phosphoric acid, nine in all. There are one or two others occasionally included, but they do not seem to be of much importance to the cultivated crops.

I mention these simply for the purpose of giving their names; to describe the appearance and properties of each would be foreign to my present purpose. Any farmer who wishes to become acquainted with them personally, can easily find directions which will enable him to accomplish his desire. Their names and numbers being now given, in my further remarks reference may be made to them without causing the reader to feel as if he were on entirely unknown ground, or among utter strangers.

From the connection in which the organic parts of plants, animals and manures were placed, the nature of the relation between the former and the latter, will now be plainly seen; the farmer will understand that to his knowledge of the fact that manures are the food of plants, he has added the names of the substances which constitute that food.

This is an important step gained, but it only plunges us into fresh difficulties as we come to examine the diverse effects of the various fertilizing substances which are considered valuable, and which indeed experience has proved beyond a question to be so. In looking over accounts of results obtained by using different manures, of known composition, the farmer perceives great variation in their apparent effects. A small quantity of guano for instance, is more powerful in enriching the soil and hastening the growth of plants, than a whole load of ordinary manure, weighing probably fifty times as much. This is a very striking difference, and leads to a comparison as to the composition of



Taplin's Horse Power.

The best horse power, decidedly, with which we are acquainted, is that more commonly known among us as Taplin's. The annexed figure gives a good idea of it. It has a wooden rim or circle, from 18 to 20 feet in diameter, to which iron segments are bolted on the under side.—These gear into a cog wheel which revolving, turns a drum or pulley on the same shaft, which moves the machinery by a belt; or it may be geared on to the cog wheel by other cog wheels. The horses are attached to whiffle trees, hooked on to the arms close where they join the rim, and thus move the power as they travel round. It can be transported easily from place to place in a common farm wa gon, and may be set up in twenty minutes, and taken down in half that time. It is simple in its construction, not liable to get out of order, and when so, is easily repaired. It may work in the open field, though it is better to have it under cover when stationary, during stormy or very hot weather.

When the team is to be attached to this power take the pin out of the standard which keeps the rim on a level, and lower one side of the rim to within two feet of the ground; now step a horse over, then swing it round to the next hook for a whiffle tree and step over another horse, and so continue till as many are put on as are wanted.

For efficiency, durability and simplicity, we prefer this power to all others. Price $55 to $75, according to size and quality. We recommend that size which costs highest, as the most serviceable, easiest worked, and cheapest in the end.

[*American Agriculturist.*

The Mill represented as attached to the Horse power, is a small Conical Bur-stone Hand or Horse Mill, which, when well made and properly put up, is very popular in many of the Southern States.—Eds.

the two manures. It is found first, that the barn-yard manure contains a large quantity of water which of course deteriorates so much from its value; second, on examination of the dried residue in each, it is found to consist of the same substances. These are not, however, in the same proportions. In the guano, we find that *ammonia* and *phosphates* are the leading ingredients; in the barn-yard manure, carbon and silica.

Here is a tangible difference, but the most doubtful feature in the case to the farmer, has yet to be explained. He points to the analyses of plants and says, "silica in the ash and carbon in the organic parts are most prominent substances, and why are they not equally valuable with the others that are less in quantity?" Ammonia owes its value to the nitrogen which it contains, and phosphates theirs to their phosphoric acid, they being combinations of that acid with lime, magnesia, iron, &c. Nitrogen and phosphoric acid then are added most largely by guano, silica and carbon by barn-yard manure. What is the cause of so wide a variation in effect upon all crops? Why are the two first worth more than the two last, since plants do not contain so much of them?

To this I reply at once that they are not in themselves more valuable or more necessary, and shall proceed to show that their superor importance is owing to circumstances alone.

First, as to phosphoric acid. In the straw and husk of grain we find little of this substance, but in the grain itself fully half of the ash is composed of it; it is present in the grain because that is the natural food of the animal in which must be contained the material for building the bones, the frame work of the animal body, these being made up chiefly from phosphate of lime. We find the same thing to be true of nitrogen; in the straw and all those parts of plants that are not of much value as food, there is little of it, but in the grain and all food considered particularly nutricious, there are certain substances quite rich in nitrogen. This body constitutes a principal part of animal flesh, and thus food which contains much of it is remarkably nutricious because it supplies this material toward the increase of the body. Ammonia is important in manures, because it is a chief means of furnishing nitrogen to the plant.

This brings us to the point which I wish to impress. When we examine a soil, we find that its fertility or barrenness, depends on the presence or absence of the various substances named above. If one of them is wanting, the capacity of the soil for bearing good crops is greatly diminished. The *most likely deficiency* in long cultivated soils, is in the *phosphates*, and in bodies containing *nitrogen*. In *new* soils, these *two classes* are as a general rule *smallest*. Every farmer knows that it is ordinarily the *grain* which is sold off, while the straw is returned as manure. The grain as we have seen contains most of the phosphates and of the nitrogen, so that of course these bodies, originally small in quantity, are soonest exhausted. Here then, we have the reason for their efficiency. The carbon, oxygen, hydrogen, lime, potash, silica, &c., are each and all equally indispensible to to the plant in its various parts, but they are much more abundant, there being comparatively few situations where the plant cannot obtain a supply of all or nearly all. The scarcity of the phosphates, and of ammonia or other bodies containing nitrogen in the soil gives these substances such high relative value, and causes manures which contain them in large quantity, to produce such a marked effect.

My desire to make this subject plain, has extended this letter somewhat unreasonably, but if I have made myself understood, I am sure that no farmer will have found a clear explanation on such an important branch of his profession, very tedious.

Good fences make good neighbors.

Qualities of Lime, and its Comparative Value for Agricultural Purposes.

The questions are frequently asked, which is most useful for the field, oyster-shell or mineral lime? Is not magnesian lime always injurious? Is lime or marl the best fertilizer? Numerous other and somewhat similar inquiries are constantly made by farmers, most of which would be easily resolved by their own minds, did they possess a tolerable knowledge of the leading principles of lime, marl, magnesia, and their application. An entire volume might be appropriately occupied with the consideration of these important fertilizers, but we must content ourselves with the occupancy of a page or two only.

Lime (carbonate of lime) constitutes almost the entire portion of limestone, marble, chalk, oyster shells, and others of marine or fresh water origin; and marls seldom contain less than 20, and frequently as high as 70 or 80 per cent. of carbonate of lime. It is a compound substance, made up of two *proximate* principles, carbonic acid and lime, in proportions of 46 acid and 54 lime. Each of the above contain two distinct principles termed *ultimate*, because we do not know that they can be decomposed or separated.

Quicklime, is the condition in which lime is left after burning limestone, chalk, or marl, which expels the carbonic acid. It is composed of oxygen (a gas) about 28.6, and calcium, (a metal,) 71.4 in every 100 parts. Carbonic acid is made up of oxygen, about 72.4, and carbon 27.6, in every 100 parts. The metal has the same peculiar quality when exposed, to air as potassium, the base of potash, when exposed to water. It takes fire and burns with great intensity until saturated with oxygen, when the above proportions are again re-established. So much for these compounds, a knowledge of which will not be unimportant to the thinking agriculturist, in tracing their various changes and application. Nor are other characteristics less so.

If quicklime is exposed to the air, it rapidly absorbs about one third its weight of vapor; or if water is thrown upon it, this instantly combines with the lime, until it reaches the point of saturation. This compound is called the hydrate of lime, and is the condition in which freshly applied lime exists in the soil, when spread and incorporated with it. After a time, however, it gradually combines with carbonic acid, forming an imperfect carbonate; and it is the alernate absorption of carbonic acid and other gases, and their relinquishment to the demands of growing vegetation, which in the yet unsolved mystery of agricultural chemistry, is deemed one of the most beneficial results of lime.

Lime is a direct food for plants, constituting a part of the ash of all; but it is found in much greater proportions in some than in others. 1,000 pounds of dry pea straw, sainfoin, red and white clover, each contain from 20 to 30 lbs. of lime, while lucern has nealy 50 lbs. Every other cultivated plant requires a considerable quantity to mature and perfect it. But in addition to this, and its aid in bringing the gases (the organic portions) to vegetables, it greatly facilitates and disposes those chemical changes in the inorganic or earthy parts of soil, which are so essential to furnishing the plants with all they may require.

Lime serves the further purpose of altering and improving the mechanical texture of soils. Its greater density and weight induce its settling through the adhesive masses of clay soil, thereby opening them to the free admission of air and moisture. Where these lands have been underdrained, and the subsoil plow has been used, the application of lime is invaluable. The addition of moderate quantities of manure on fields thus prepared, insures prolonged effects. When applied to light and sandy soils, with the addition of vegetable manures, lime compacts and renders them more adhesive.—The manures, roots or grasses, &c., are thus combined in a fine mould on the surface, forming a proper conductor and radiator of heat, an absorbant of moisture, and the most appropriate bed for the roots of plants. Lime seems to exert a further, and most improving effect in both clay and sandy soils by inducing those chemical combinations in their constituents, which tend materially to correct their inherent defects. By rendering clays more porous and friable, and sands more adhesive, their mechanical texture is made to approximate as nearly as possible, towards the perfection of each. It is used with great effect on peaty soils, as it hastens the decomposition of vegetable matter, and diminishes its porosity and sponge like texture, thereby rendering it less absorbent of water in excess, which is one of its greatest faults. For such soils it should always be applied in its caustic condition as quicklime.

Lime acts favorably for vegetation, by correcting the acidity of the soil. It not only combines with and neutralises most of the acids found in soils, or that find their way in them from springs, but it also decomposes and renders available for the wants of plants many substances which in their natural condition are really noxious to them.

Lime decomposes the inert vegetable substances in the soil, and converts them into an immediate and appropriate food for the crop. It is in consequence of this favorable action and the large increase of the crop thereby secured, that the vegetable manures, and so much of the mineral element, as are required by plants, are speedily abstracted. The consequence is, that deterioration of the soil inevitably follows, unless other manures are added. the lime simply enables the soil to yield in a few years, what would otherwise require a greater number. But these augmented crops furnish the means of perpetual and increasing fertility, even if a part only of the excess beyond the ordinary yield, is appropriated for this purpose.

It is essential to the favorable action of lime, that the soil contains a full supply of vegetable matter; and when the lime has been applied in excess, or it ceases to act, more vegetable matter must be added. The effect of lime is not perceptible in the soil the first season it is applied, and its full influence is seen only after the second or third. Its effect is greatest when kept near the surface.

[*American Agriculturist.*

From the Working Farmer.

Power of the Soil to Retain Manures.

Those who have attended our lectures on Agriculture, are well aware of our views on this subject, and that we have often stated that soils which were retentive of organic manures, were also retentive of alkalies.

If two leach tubs, one containing a quantity of wood ashes and the other a similar quantity of ashes underlaid by its bulk of soil, should have water filtered through them, that while the tub containing the ashes alone would yield a strong lye, the other tub would yield but slight quantities of alkali. This fact we long since proved by experiment, and we have often been doubted when stating the results. The chemical rationale of this action is now likely to be brought to light, and the annexed account of a lecture delivered by Prof. Way, before the Royal agricultural Society of England, will show that a new era in agriculture as a science, is about to take place. We shall look for further papers from Prof. Way on this subject, with great interest, and we sincerely hope that he may meet with the success to which his originality so fully entitles him. In the meantime, we ask a careful reading of the following, and not without a strong desire to be supported in our former assertions on this subject, it being the only theory we have advanced in which our agricultural friends have thought proper to doubt our accuracy:

"Mr. Way stated that he had on that occasion to bring before the society some facts and observations in regard to the actions of soils upon the constituents of manure. These observations he believed to be perfectly new to the agricultural public, and he hoped to show that they would throw much light on some of the operations of practical agriculture. As, however, he was preparing a paper for the next Journal of the Society, in which he would go minutely into the subjects and give the results of the investigations which had been proceeding for the last eight or nine months in his laboratory, he would that day merely give an outline of those results, avoiding every thing in the shape of detail. It has often been observed that the dark liquid from a manure heap, if by chance placed upon a bed of soil through which it could filter, issued from the bottom almost entrely deprived of color. Again, the water of drainage, especially in heavy clay soils, was observed to be free from color, and often beautifully clear and limpid. What was the nature of these actions? Were they the effect of mechanical filtration and the separation of the solid substances suspended in the water? Most persons would answer in the affirmative, and such had been the general impression hitherto, but it did not meet all the circumstances of the case.

On the table were glass filter-jars, containing a red soil from Mr Pusey's estate in Berkshire. The soil, as the gentlemen present would see, occupied the jars to the depth of five or six inches. Upon one of these Mr. Way poured water obtained from one of the sewers of London. To another filtering jar he added a quantity of the fetid liquid produced in the steeping of flax. Both of these liquids were turbid, highly colored, and exceedingly offensive to the smell; but it would be seen that, so soon as having passed through the soil they began to drop from the jar, they were no longer the same.—The resulting liquid had an earthy smell it was true—a smell always accompanying soils—but was no longer offensive to the nose. Now to what ingredient of the soil was this metamorphosis due? Was it due to the sand acting as a filter. It was easily proved that such was not the cause; and that there might be no doubt on this subject, Mr. Way would pass through a filtering jar, containing more than nine inches depth of fine white sand, a quantity of cow's urine taken from a tank in the country. The liqid was so far altered by the filtration, that the turbidity was removed, as it would be by filtration through a paper; but the color and disgusting smell remained in all their intensity. Sand, therefore, obviously was not the active ingredient in soils in respect to the power under discussion.—The same must be said of the different forms of the gravel, which were only coarse sand. The other great ingredient of soil was clay, and to this Mr. Way attributed the power in question. As an experiment comparative with the last, he would pass the same tank water through sand, mixed with one-fourth of its weight in white clay in powder, and they would observe the result was very striking.—The liquid coming through was clear, and free from smell; indeed, it was hardly to be distinguished by its external characteristics, from common water. There

could be no doubt, then, that the property of the soils to remove coloring matters, and organic matters yielding smell from solution was due to the clay contained in them. Filtration was only a method of exposing the liquid in the most perfect form to the action of the clay, but it was not necessary to the success of the process. In proof of which, Mr. Way stirred up a quantity of soil with putrid human urine, the smell of which was entirely destroyed by the admixture, and upon the subsidence of the earth the liquid was left clear and colorless. It appeared, therefore, that the clay of soils had the property of separating certain animal and vegetable ingredients from solution; but was this property the only one exhibited? Mr. Way had found that soils had the power of stopping also the alkalies, ammonia, potash, soda, magnesia, &c. If a quantity of ammonia, highly pungent to the smell, was thrown upon a filter of clay or soil, made permeable by sand, the water first coming away was absolutely free from ammonia. Such was the case also with the caustic or carbonate alkalies, potash, or soda. This was a very wonderful property of soils, and appeared to him as an express provision of nature.

A power he remarked is here found to reside in soils, by virtue of which not only is rain unable to wash out of them those soluble ingredients forming a necessary condition of vegetation, but even those compounds, when introduced artificially by manure, are laid hold of and fixed in the soil, to the absolute preclusion of any loss either by rain or evaporation.

But Mr. Way had found that this property of clay did not apply only to the alkalies and their carbonates, but to all the salts of these bases, with whatever acid they were combined. Here again was a beautiful provision; sulphate of ammonia, when filtered through a soil, left its ammonia behind, but the sulphuric acid was found in the filtered liquor—not, however, in the free state, but combined with lime; thus sulphate of lime was produced, and brought away in the water. In the same way muriate of ammonia left its ammonia with the soil, its acid coming through in combination with lime, as muriate of that base. The same was true of all the salts of the different alkalies, so far as he had yet tried them. Thus lime in the economy of nature was destined to one other great office besides those which had already been found for it—it was the means by which the salts ministering to vegetation became localized and distributed through the soil and retained there until they were required for vegetation. Mr. Way pointed out that, from what he had just shown, it must be obvious that there was no provision for the ordinary salts of lime themselves. It was necessary that when the alkali of a salt is laid hold of by a soil, some provision should exist for the neutralization of the acid with which it was combined; for all other salts lime performed this useful office, but it had nothing to fall back upon for its own salts. Sulphate, muriate, nitrate of lime, when passed through a soil, would come through unchanged. This, however, did not extend to lime itself, or to its carbonate when dissolved in carbonic as it is found in most waters.—Quicklime, when dissolved in water, is removed by passing water through clay, or through most soils containing clay; carbonate of lime in solution is so effectually removed, that hard water may be softened by the same process.

With regard to the extent to which these actions were capable of being carried. It was not to be supposed that we could go on filtering indefinitely with the separation of the salts contained in the liquid. On the contrary the limit was soon reached; but although small in per centage quality, the power was, in reference to the bulk of the soil, enormously great. He had found that a pure clay would absorb, perhaps two-tenths per cent. of its weight of ammonia—that is to say, 1,000 grains would separate two grains of ammonia; and from reasons which need not then be noticed, a loam of a well cultivated clay soil would absorb nearly twice as much. Now every inch in depth of soil over an acre of ground weighed about 100 tons. Consequently, ten inches of depth of such soil would weigh 1000 tons, and would be adequate to combine with and retain two tons of ammonia, a quantity of which would be furnished by about twelve tons of guano. Now one-sixtieth of this power would suffice for the preservation of the ammonia of an outside dose of guano; consequently, he was justified in saying that the property was practically of immense activity. Mr. Way stated that he had ascertained the extent of the power in different soils and for the different alkalies. The property was decidedly a chemical one; and although he intended only to state the facts, without entering upon their explanation, he might say that he had every reason to believe that he should be able to develop that satisfactorily at the proper time.

Having thus endeavored to call their attention to this highly interesting subject, the lecturer went on to point out very shortly the different operations of practical agriculture upon which it was likely to throw light.

First, as to manuring: Obviously if there was a provision in the soil for the retention of the salts of manure, and for the ammonia and other products of the decomposition of animal and vegetable matter, the soil was the proper place for those decompositions to go on, and no matter how remote the period when the crop would be taken, it would be perfectly safe to get the manure into the land as soon as practicable after its production. Again, the equal distribution was a point also which seemed of considerable importance; for if it was an absolute necessity that a new class of compounds was found in the soil immediately the manure reached it, it seemed to follow that the compounds furnished the elements of nutrition to plants; consequently we should seek to produce them by every means in our power. Liquid manuring, wherever practicable, was an effectual way of securing this distribution. In the case of artificial manures—that is to say manures composed of chemical salts—much simplicity was introduced by the discovery. Henceforth we must regard the different salts (those of ammonia for instance) as of value in relation to the price of ammonia, or other base contained in them, since they are all alike when incorporated with the soil.

In liquid manuring it has been usual to think that the application must be made to grass, or to land bearing some crop; but now that it was known that the land, not the plant, retains the manure, no theoretical difficulty could arise in the use of liquid manure for arable land.

In irrigation, the principle now illustrated must certainly be of great importance, if, as there is but little doubt, the chemical characters of the water are of consequence, and that the soil is the means by which the salts and organic matters are separated for vegetation; then it will be obvious that the water should be made to flow *through* rather than *over* the soil.—This reasoning is consistent with the observation, that to produce the full effect, irrigated land should be well drained.

The application of water to land not at the time bearing a crop, would be clearly admissible under this view, and is indeed practised extensively in Germany and some parts of Italy. Mr. Way also pointed out that the proper depth for drainings must be materially influenced by this property of soils to absorb manure. Without asserting that this or that depth was the most advisable, he thought it would be admitted that the water of drainage should pass through a depth of soil regulated, amongst other circumstances, by its particular power of detaining the manures placed upon it.

To the question of the application of the sewer refuse from towns these experiments brought much light, as they clearly proved that the sewer water might be applied in an unintermittent way, provided that a due relation were maintained between the capacities of retention of the soil, the quantity of manure applied, and the amount of crop taken in a given period. The great obstacle to the use of sewer manure, based upon the belief that it must be applied to the plant in actual growth, or it would otherwise escape in the drains, is thus removed. Lastly, after adverting to the probability that the power of soils to remove carbonate of lime, and thus soften water might be turned to account for the supply of towns with pure water, Mr. Way said that he had great hope that with the clue he now possessed, some material progress might be made in the elucidation of the action of lime itself upon soils which he had reason to believe was closely connected with the phenomena which he had that day had the pleasure of explaining.

[*To be continued.*]

Barley for Soiling.—Mr. Moore, of Georgia, considers this grain one of the best that he uses for that purpose. It should be sown on good land, and may be sown from September to February, in this latitude, and cut any time before it is ripe.

From the American Farmer.

Root Culture in the South---The Cow Pea---Clod Crusher.

Beaufort, S. C., 16th April, 1850.

Mr. Editor:—I am very fond of gardening, as well as an enthusiastic planter, and my situation is a peculiar one, and very favorable to the growth of many plants that do not generally succeed.—Being also embarked in the business of making manure largely, for which my situation is very advantageous, I am desirous of cultivating such crops as are profitable for feeding mules and oxen, which are indispensable attendants on making and applying them. I wish, as soon as the season comes round, to try, the carrot, parsnip, and the different varieties of the beet for this purpose on a more extended scale than in a garden. I made a very fine crop of the ruta baga the past winter, which I fed mostly to my oxen, but I lost four fine oxen when I first began on them, which I attributed to their being given them with their tops on, for as soon as I lost them I had the tops carefully cut off, and lost no more, though I continued to feed on them two or three months longer. I once exhibited a carrot weighing six pounds, and had others that weighed rather more, raised from seed brought from Paris, but I cannot recollect what was the variety, except that it was a white one. I am very glad to see that you are calling the attention of farmers to the value of the cow or field pea as a fertilizer. Although one of the most cheaply cultivated and profitable crops known among us, they are very far from being valued as they ought to be. No plant known among us will furnish so much grain for man and beast, and so much long forage of the best quality on poor lands; and for feeding laboring horses, mules, and oxen, are much prefered to corn, and for feeding milch cows, are unsurpassed for the richness and quality of the milk, cream and butter. Many varieties of the field pea are cultivated among us, only one, a brown, is generally known as the cow pea, and is the one most generally cultivated and for sale. We have also several varieties that when sown down during the month of April or first of May, ripen their fruit during the latter part of July, then die off. A second crop of these is generally raised from the seed gathered from the first crop and sown the latter part of July, ripening during the month of Oct. A few years since I accidentally got a few seed of what has proved, upon a thorough trial of three years, to be the best variety I have ever heard of. It is said to have come from Philadelphia, where it is called the "shinny." When sown early, and upon good lands, it begins to ripen about the middle of July, and continues bearing crop after crop until the plants are killed by the frosts of Autumn. The last summer I gathered from a crop sown on a recleared old field of medium quality, nine pickings or crops, and left the tenth because I was otherwise too much engaged. In another field, on one acre, sown the latter part of July, I gathered 1288 pounds of peas in the pods, while from one quarter acre of the cow pea, sown alongside, and at the same time, I gathered only eighty two pounds. This would not prove a good variety for plowing in green for manure, for if it ripens a good crop, the temptation to gather the pods would prove two great, and thus a part of the benefit would be lost to the soil. I could send one bushel of this seed for distribution, if you think that it would prove acceptable to the farmers of your neighborhood. For turning in only, a very small variety, known among us as the Pigeon or Lady Pea, would prove the best, as it is of very luxurious growth, but will bear but little, if any, fruit, if sown before the begining of July.

Allow me to recommend to your readers a "Clod Crusher," figured and described in the January No. of the American Agriculturist, for levelling and pulverizing very rough, stiff and rooty clay lands where the harrow could not be used, and for stiff clay lands generally.

With a hearty wish for the circulation of your Journal proportionate to its great usefulness and your untiring zeal, I remain, Your "Old Subscriber,"

Rob't Chisolm.

Mixing Soils.

"Some nine or ten years ago, in the early part of my farming, I had occasion to deepen a well about six or eight feet. The earth thrown out was a tenacious blue clay, just damp enough to cut into lumps, and adhesive enough to remain so. After finishing the well, the man who had charge of the farm was at a loss to know where to deposit it. Having a bare sandy knoll in one of the fields, which was not inaptly termed "personal property," from its being wafted about on every breeze, here to-day, and there to-morrow, it occurred to me that the clay would hold the sand and form a soil. I accordingly ordered it deposited there in heaps, the same as if manure. This was in the summer. In the fall the lumps were scattered over the surface and left to the action of the rain and frost. In the spring it was found to have broken down, crumbled and slacked like lime. These heaps were reduced and the clay evenly spread over the surface. The field received a coat of manure, was plowed and sown with oats and peas. That where the clay was applied produced the largest and most vigorous growth, of any other part of the field. In the fall it was sown with rye, and seeded down with timothy and clover. The rye as well as the clover was much more vigorous and heavier on that than any part of the field, in fact, the person who occupied the farm after I left it, informed me that he lost his crop of grass on that part in consequence of its lodging. Thus the personal was made real or fast property, and remains so to the present day.

"Having experienced such beneficial effects from mixing clay with sand, I was afterwards induced to try what effect sand would have on a rather retentive soil. The garden at Tree Hills Farm, is a stiff clay loam resting on a strong tenacious clay subsoil, rather inclining to moisture. The second year after I purchased and took possession of it, I caused a coat of sand, from six to eight inches deep, to be put on one of the squares, which was spaded in with the manure, and I had the satisfaction to witness the most gratifying and happy results—the crop of that square was far superior to any other in the garden. Since then I have caused over five hundred one-horse cart loads of sand to be put in the garden, and the effects are still visible although the sand has disappeared.

Raising Potatoes.

The Germans have recently taken a particular fancy to raising potatoes. The following is their method of producing the greatest good from the greatest number: The potato is planted whole, without any preparation, only allowing a little more space than usual. When the plants have attained the height of the hand, they are also cleaned and hoed as usual.—When, however, the time for drawing up the earth around them has arrived, the following process is adopted instead:—'The green stalks are divided and laid down by the hand on the flat soil in the form of the spokes of a wagon wheel and covered with the neighboring earth—the operation being readily performed by placing the foot on the plant. Some weeks later the leaves began to push through the soil, when they are again laid down and covered with four inches of earth.—This is all the labor required, and occupies about the same time as the ordinary hoeing up process, but it produces six times more fruit. The subterranean stalks are covered with potatoes in the form of a wreath or chaplet,"

The Guinea Hen.

The Guinea Hen, or Pentado, is nearly an everlasting layer. They are said to unite the properties of the Turkey and the Pheasant. They are a native of Africa, though said by some to belong equally to this country, and are easily domesticated. Its flesh is more like that of the Pheasant than the common fowl both in color and taste, and is reckoned a very good substitute for that bird. It assimilates perfectly with the common fowl in its artificial habits and kinds of food. Its gate is peculiar, as is also its cries. They are fond of marshy places, always perch during the night in high situations or on trees. It is a little singular that American farmers do not turn their attention to these fowls. A knowing Jerseyman named David Bonner, from England, hired a patch of five acres four years ago, and commenced raising eggs for the New York market. Bonner has never hired any help, and at this moment owns a farm for which he paid $4,700 of which the buildings cost over $3,000. His farm is all paid for—he owes not a cent in the world, and he owns a flock which varies from 800 to 1200 Guinea hens.—*Suffolk Democrat.*

Let each man do his duty, no matter whether in the court—the senate—the field, or the manufactory, and a higher title he cannot hold to the respect and esteem of his fellow men.

The Farmer and Planter.

PENDLETON, S. C.

Vol. I., No. 5:::::::::::: July, 1850.

Clover.

In answer to an inquiry, "What soil is best for clover, and how the land should be prepared for receiving the seed," we would say, that although we have never gone extensively into the business, yet we have long since convinced ourselves that Clover may be profitably grown in the upper parts of both South Carolina and Georgia, and no donbt in the lower parts too with a proper application of marl, which is every where to be found in such inexhanstible stores. Stiff land is the most suitable for clover. Land that was originally fertile—even if from a long course of cropping and bad management it has become much exhausted, is preferable to lighter lands in their virgin state. This we conclude is owing to the fact that in addition to its close texture, such land is found on analysis to contain more of the inorganic substances suitable to the growth of clover, than is contained in lighter soils.

Stiff land, if properly prepared by deep plowing—subsoiling—and a liberal application of putrescent manures alone, will, in its production of clover, astonish those who have made no experiments in its culture.

We would not, however, discourage such as have not land of this character, for even *sandy* soils with open porons subsoils may be made to produce fair crops by a few applications of either marl, lime, or wood ashes in addition to putrescent manures, and recommend the application of at least one of these inorganic fertilizers to any land, but less would suffice on stiff, than would be indispensable on light soils.

As to the preparation—Land that has been well preparedfor turnips will be found in a good condition when the turnips are taken up, which should be done early in December for the reception of clover seed. We have usually sown on such land.

If it is intended to prepare land expressly for clover, then we recommend some cleansing crop to occupy it at least one, but two years would be better, so as to exterminate all weeds both annual and perennial. A crop of peas drilled and cultivated, and fed off to hogs in the fall would be a good preparatory crop. The hogs in gathering the crop would distribute a large amount of valuable manure equally over the land. We have improved lands more rapidly and at less cost in this than in any other way.

Previous to sowing, the land should as before stated, be well plowed and subsoiled, then rolled and harrowed until all clods are broken down and the soil thoroughly pulverized. This done, if neither marl nor lime can be obtained, apply ashes, unleached are best, but leached if you have no other—fifty bushels to the acre if you have so much, if not, even ten or five. We have found the bed of a coal kiln a good application—if fresh, equally as good as ashes alone. And whilst on this subject we would remark that, the after applications of manure,—which should be more or less yearly—whether organic or inorganic, may be on the surface immediately after cutting or at any time when the grass has been closely grazed down.

As to the time and manner of sowing.—Any time from September to February will do in the South. We prefer, if the land can be prepared so early, to sow in October or November. Clover sown in either of these months, with ordinary seasons, will come up and take such root as to enable it to withstand the next summer's sun without a protecting crop, as well as to hold its own with weeds should any spring up. If clean seed are to be sown, they may be mixed with moistened ashes or sand, and if clover only, not less than six quarts to the acre. If mixed, which is better either for hay or grazing, four quarts of clover and a half-bushel of orchard grass; or one peck of orchard grass and herds grass, and four quarts of clover.

Timothy is usually sown with clover, but it does not attain its most nutritive state until the latter is too far advanced to make good hay—hence the orchard and herds grass are preferable for a mixed crop.

In order to ensure an equal distribution of the seed over the whole land, our practice has been to lay off our lot into ten feet lands, then to divide the seed into as many parcels as we have lands, and to each parcel to add a suitable quantity of moistened ashes to enable us to scatter them equally. After sowing, the ground should be lightly harrowed or brushed in and rolled.

If small grain is sown as a protecting crop at the time of sowing the clover, we prefer sowing it before the first rolling and harrowing as recommended in preparing the land. If the clover is sown later, on the growing grain, then we should harrow after sowing, and roll in the spring, but on small lots not intended for grazing, we are not in favor of sowing small grain with clover at all, but greatly prefer a top dressing, immediately after sowing, of straw or leaves—the former is much the best. Pine leaves are better than oak, because they are not so apt to smother the young plants. In proof of the superior advantages of this practice when applied both to clover and wheat, we will here give an extract from a letter of the Rev. Sidney Weller, of Halifax Co., N. C., to the Editor of the Albany Cultivator:

"My continued experiments in the use of pine straw and other litter, as a covering to wheat after sowing, and as an antidote to clover burning out in sandy or any soil, more than exceed my expectations. By four years trial, I have now found it always benefits the wheat, and ever guards the clover from burning out in hot, dry summers. Several in this region have adopted my plan, and are encouraged by the results to go more fully into it. Light four tined iron forks which were procured from Baltimore, greatly facilitated the gathering and loading in the woods, and the spreading the pine straw and leaves over the ground. We take due care to spread it a proper thickness, say not over an inch. I have tried with the happiest results covering oats and clover sown together in the spring, and also clover covered the winter or spring following the time sowed. And Irish potatoes here, thus covered 3 or 4 or more inches thick, are generally increased in product and effectually guarded against drought."

We have found that top dressing with the second crop of clover itself, which is usually saved for seed, answers a valuable purpose. We have now (1st of July) two lots of about one acre each, on which there is a beautiful stand of clover, all in bloom, which was seeded in this way: The lots had been prepared for turnips, but owing to a severe drought after sowing twice, a stand could not be obtained; we then concluded to sow them in barley, which was done, and the second crop from about three quarters of an acre of clover, which had been cut and saved for seed, was evenly spread over the surface of the two lots and a roller run over the whole. These lots were heavily grazed from Christmas to some time in March, when the stock was taken off.—The barley was cut at the usual time and the ground left in the full occupancy of the clover. This plan we shall adopt in future as the least troublesome mode of seeding our clover lots, besides giving us valuable grazing through the winter and spring. We do not think the young clover sustains much injury from the hoof, provided the stock is kept off while the ground is wet.

Geology.

Through the courtesy of Gov. Collier, of Alabama, we have in hand a copy of the first biennial report on the Geology of that State by M. Tuomey. As might be expeeted the report bears the marks of ability and would seem fully to sustain the high and well earned reputation of Prof. Tuomey as a man of science and fidelity in his offices. From the limited time allotted to make the surveys, they must have been partial, and less thorough than desirable in justice to the cause of Geology and to the Geologist. This, however, is a common disadvantage that men of this science have to labor under, and time only will remedy the evil.

The report contains a great deal of valuable information. and should be not merely read, but carefully studied. It is not a paper of interest to the inhabitant of Alabama alone, but may be made profitable, particularly so, to every planter, farmer, and mechanic in the South. It will be read with attention by the agriculturists and capitalists of Great Britain, who are ever watchful of developments that may effect their interest and ready to turn them to their own advantage.

To answer why *we* should be less observant in what concerns ourselves would be by no means an easy task; to answer why we are, quite an easy one. Agriculture is the basis of wealth and sustains all other pursuits. Geology and Chemistry are her handmaids, and we must joyfully welcome them to her aid. This connection

to any considerable extent is new, and has met with obstacles on every hand, but like genuine ore it has borne the test, and is destined to a complete triumph over prejudice. "It is a philosophy which never rests,—its law is progress; a point which was invisible yesterday is its goal to-day, and will be its starting place to-morrow."

Much that was deemed a sin to enquire into and subversive of revelation but last year, is now well understood, and made the policy as well as the duty of every intelligent person to be acacquainted with.

The reason, that one plant springs forth, flourishes, blooms, and matures, while another droops and dies, is now scarcely a mystery.

The operations of nature are not accidental or uncertain. The daily changes in the animal, vegetable and mineral kingdom are the result of fixed and determinate laws. The food required for vegetation—whether present in a given soil—how it may be supplied if wanting—and in what quantities, are not now matters of uncertainty.

What can be more interesting than the investigation of the successive changes that have been taking place in the "earth's crust," for thousands of years, and the more so since these observations furnish the means of fertilizing the waste places, and rendering our barren plains fertile and productive? It cannot be said to be unprofitable to open this stupendous book of nature, and read on its successive pages the progressive development of organic life—the recent origin of man—of the distinct races of beings that have lived in water and on land one after another and long since become extinct.—But if we can see nothing to admire in this mighty domain, if there is nothing sublime to us in this history of man, matter, things, creation, and extinction, we may find enough of the useful to make us devoted friends of the science.—The immense coal measures pointed out in the report are an inexhaustible source of wealth—call them into use and there will be no occasion for the importation of coals and less for the destruction of our beautiful forests for fuel.

Extensive quarries of marble susceptible of a high polish and great beauty, consequently valuable in the arts, are exposed. Limestone for agricultural uses, also that possessing magnesia, silica, and alumna in such proportions as to be unusually good for architectural purposes, is reported. Grind stones fully equal to those imported from Nova Scotia have been discovered and worked to some extent. Millstones in composition very favorable, "being a cement of silica with white quartz pebbles closely enveloped in it" may be obtained in St. Clair. These are a few of the many developments made known in the report, and show in some faint colours how important it is that thorough surveys should be made by every State of her own resources.

Postage.

We assume all risk in the transmission of money for subscription by mail, but have not intended to announce that we are willing to pay the postage. It not unfrequently occurs that we receive a letter charged ten cents covering a single dollar. This is neither in compliance with our published terms, nor just. And still worse, letters come to hand not *pre*-paid relating to matters that concern *no* one but the writer.

These appear small matters we know, but it must be remembered they make very considerable in the aggregate—a hundred dollars in a thousand. We are willing to pay postage on communications to the paper; this is legitimate.

Back Numbers.

We would say to those, who are disposed to sustain our endeavors to promote the interests of Southern Agriculture. and have not subscribed to the Farmer and Planter, that we have yet a supply of the back numbers and should be glad to enter many more names on our subscription list and furnish all in arrear.

Greenwood Agricultural Society.

It gives us pleasure to learn that the planters about Greenwood, in Abbeville, have it in contemplation to organize an Agricultural Association in that place. We say, go on in your laudable purpose, and send us a good report, that others may be encouraged to do the same.

The Journal of the New York Agricultural Society.

The May and June Numbers of this work have come to hand. The paper is to be under the conduct of an executive committee, and is intended to be the vehicle of the reports of the State Agricultural Society. Who can tell us how many agricultural Journals there are in the State of New York?

State Agricultural Society of South Carolina.

Our cotemporary of the "Camden Journal" writes as below, to which we append a list of premiums, clipped from the "Telegraph," to be awarded on the day of the meeting to the successful competitors:

"The semi-annual meeting of this Society will be held in this town on the 15th day of July next. We understand Major A. H. Boykin, of this district, will deliver the address. Being a practical planter, and one of the most successful in our district, we are satisfied the address will be an able one—full of useful information, upon this subject. The agricultural cause is one in which we are all deeply interested. There is much more involved in the success of the planting interests than those who are not immediately concerned are apt to imagine. The prosperity of the country depends more upon this than any other cause which it is possible to conceive of. Should the products of our soil fail, how soon would the wings of commerce droop, and every department of the commercial and business world be affected by such failure. Only let us be deprived of agricultural resources and we cannot move. Herein consists the advantage of the South over the North, in this particular at least. Their destiny is in our hands. Non-intercourse is the doctrine of some. We believe it is a practical one, and the only one left us, before we arrive at that point where the lamb is changed into the lion. Had the South, *en masse*, thrown herself back upon her natural advantages—had nothing to do in any shape or form with those who have not only filched from our pockets, but have taken from us our good name, how much better to-day would have been our condition—free and independent, in place of being regarded as secondary in morals, intelligence and enterprise, by those who are, in *very many respects*, very far our inferiors.

LIST OF PREMIUMS.

1. For the best Stallion for agricultural purposes, a silver medal.
2. For the best Mare for agricultural purposes, a silver medal.
3. For the best native bull over three years, a silver medal.
4. For the best native Cow over three years, a silver medal,
5. For the best Jack, bred in South Carolina, a silver medal.
6. For the best mule, bred in South Carolina, a silver medal.
7. For the best Ram, adapted to our climate, a silver medal.
8. For the best Ewe, adapted to our climate, a silver medal.
9. For the best Ram, regarding wool chiefly, a silver medal.
10. To the successful competitor in a ploughing match, with double or single team, a silver medal.
11. For the most successful and extensive experiment with lime, for three consecutive years, one complete set of the Farmers' Register.
12. For the best conducted Plantation in the District of Kershaw, a silver cup of the value of $10. A full statement of the value and operations of the plantation to be furnished by the Agricultural Society of Kershaw, or three disinterested planters of the district.

The Mole.

We have received the subjoined letter making enquiries whether there has, as yet, been found any efficient means of destroying the mole:

Messrs. Seaborn & Gilman:—I have supposed no plan by which *moles*, those destructive creatures, may be exterminated, or even lessened much in numbers, has as yet been arrived at so as to be of much advantage, to the tiller of the soil. But the old adage, that "an enquiring child is apt to know the most," is well enough to be adopted in this case, especially. I therefore ask of yourselves, or any contributor, to put me on a plan of any kind, (not too expensive) of being freed of them. I lost last season two fine lots of Irish potatoes, and had also much damage also done my sweet potatoes, by moles. They infested the banks put up for seed and table use, during the winter.

If you can satisfactorily answer the above enquiry, you will doubtless satisfy many of your readers, and none more than your friend and subscriber, R.

P. S.—Whilst asking to be informed concerning moles. it might have been as well to have asked, whether *earlier* sowing and, that too, of the Hunter wheat, now considered in some respects the best, would not be advisable for the coming crop? Rust has swept the country it seems this season of all except the early sown Hunter wheat seed."

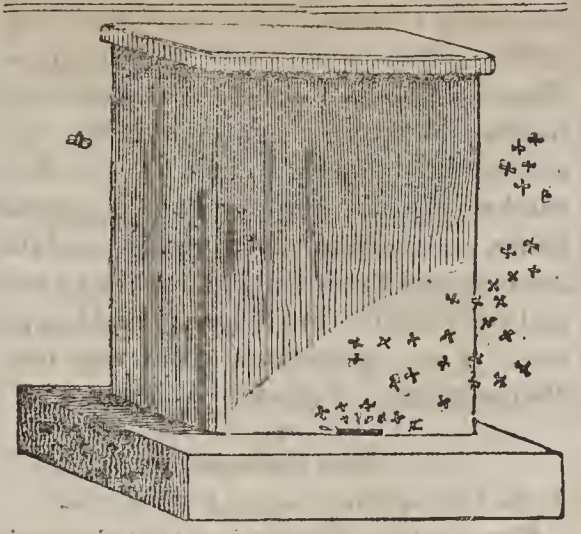
It is doubted by many whether moles should be destroyed at all, and we are rather inclined to the opinion that they should not. They may do some injury either directly or indirectly, but it is

probably more than counterbalanced by the good they do in destroying a vast number of grubs, worms and insects that feed upon the roots and leaves of tender plants. In searching for cut worms we have never been able to find one at the root of a cabbage plant near or under which a mole had passed. They some times throw a plant out by the root by burrowing under it, in search of their appropriate food, for there it is most apt to be found—and we have known a number of successive hills of corn and potatoes to be missing under which their tracks were to be found. In the latter case it is believed by many that the seed corn or nuts had been eaten, not by the mole, but by the large field mouse that travels in his track. In this way he does injury indirectly, he opens the door, with no bad intent but through which the thief enters and steals.—But as R. desires to know how to destroy moles, believing no doubt that they do much damage, we will give him all the information we have on the subject. We have seen descriptions and representations of variously constructed traps for catching or killing them. As they are, Davy Crocket like, a go ahead animal, it has been recommended to lay horns or bottle necks in which they are certain to "stick" if they don't "go through." The simplest trap, and one that would be found about as efficient as any, may be made from a plank some 3 or 4 feet long, and 1 foot wide; draw a line at right angles across it 1 foot from one end; then drive 6 or 8 nicely tapered, sharp spikes through the plank, and on the line leaving a space of about 3 inches in the centre. The spikes may project some 4 or 5 inches through the plank. This with sufficient weight on it to force the spikes into the ground, forms the dead fall. To set it, select a level situation through which the mole track passes. press down the raised earth the breadth of your shoe, set the trap with common triggers, such as boys use to trap birds with—across and at right angles with the track of the mole, letting the end of the long trigger rest on the ground, and on the centre of the space pressed down. The mole in attempting to re-open his track at this point will raise the earth and the end of the trigger with it—throw the trap and thus be pinned to the earth by the points of the spikes. Some recommend placing the castor oil bean, pills of dough, or strips of lean beef, with which strichnine, arsenic, or phosphorus has been mixed, in the tracks of moles for their destruction We have never tried any thing of the kind, and consequently cannot vouch for their efficacy. Perhaps some of our readers can give the desired information.

We have heard the Hunter wheat spoken well of, but have never sown it. We believe, however, that in our State, none other than early ripening wheat should be sown, in order to guard against both fly and rust. Early wheat is more subject to smut, but that is easily prevented by steeping the seed in a solution of Sulphate of Copper (Bluestone) some 12 to 24 hours before sowing.

CARE OF FRESH COWS.—Two to four quarts of wheat bran are found to be one of the best things to give a cow after calving, to facilitate cleaning.

Original Communications.



The Honey Bee.

EDITORS FARMER & PLANTER:—Feeling myself invited by your first number, to write a line for your paper, I will proceed to give my experience in the management of the honey bee, having had more or less to do with it, for thirty or forty years and having taken some pains to inform myself with regard to the most profitable mode of managing them. I therefore take this method to give the public the benefit of my experience.

I have seen many remedies recommended as a preventive for the worm that proves so fatal to the bees. Among others, the bee-palace, which has proved a failure. I have tried raising the hive half an inch from the bottom by driving three nails at equal distances from each other; this I flattered myself would prove to be a safe remedy; it failed. I then put my hives on salt benches; it failed. I then put them on the ground, then on rocks, and in various other positions, all of which proved failures.

From my own experience I have a safe remedy of my own for the worm. This is to make your stand thin as a slate on the bottom; put it in a cool place without any encumbrance, and move the stand two feet every ten days, commencing 10th of March and ending 10th October, taking special care to clean all filth from the bench when the hive is removed; by attending strictly to this rule you will have bees and honey too. I have not been without bees or honey since I adopted this plan.

In my judgment this worm is produced by the eggs of a fly similar to the candle fly. They will be seen when you remove your stand; kill them and you will be less troubled with the worm.

Notwithstanding my long experience with the bee, I am at a loss to understand the government of what is called the queen bee. I have seen the noble bee frequently—when I see her I have no difficulty in distinguishing her. When young she is about twice as large as the small bee, long and black, but as she increases in age she increases in size, turns red and resembles an old wasp. I have had this favorite bee killed frequently by the falling of trees to hive them and the hive is certain not to do well. I have thought that this bee perfumed the whole hive of bees so that they could not live or exist without her.

There is the drone bee of whose office I am entirely ignorant; it has been the opinion of some men that the drone does nothing but eat honey. I differ from them and do not think they live on honey, but have a food peculiar to themselves and are of much value in the hive until the increasing season is over—then, and not till then, does the bees destroy them. If you destroy the drone in the early part of the season the hive will assuredly do nothing.

Some time anterior to this it was thought that bees made their comb from the pollen of flowers, but now it is known that the wax is formed in their bodies from the honey which they gather; the pollen which they bring in is used as food for their young ones.

Some hives are made with several small panes of glass in the back; they are covered with sliding boards which may be pushed aside and thus may be seen the half formed comb and the busy bees moving over it so constantly that unless you were to watch a whole day you could not discover that they were really increasing the comb. This part of their work seems to be confusion; this apparent confusion may probably be owing to the light that is let in on them, as they like a dark house when they are at work. They have a great many different things to do; make their cells, gather honey, form wax and get food for their young ones. You would hardly believe how wise they are and would do well to become acquainted with their habits, and then you will see how they begin their work in a new hive.—It is said that they divide themselves into four companies, the first roves in the fields and collects material for honey from the flowers; the second company lays the foundation of the cells and forms the partitions; the third company finishes the corners and makes the cells smoothe inside and the fourth company is employed in collecting food for the workers and assisting to unload those who return with their burden of sweets.

They are said to know so certainly the approach of rain—though not a cloud has yet appeared—that they are never caught in a shower. It is further said that they have signs and motions by which they communicate with each other. When any one of the workers wants food it will bend its head to the bee from which it expects to receive it and that bee will immediately open its honey bag and let some drops of honey fall into the mouth of the hungry one.

They seem also to have some knowledge of sound. When swarming they have a different note to any other time and the continued sound of a bell will destroy this sound and determine their course.

Mr. Huber, in his most interesting work on bees, considers wax as an animal rather than a vegetable product, as he found that bees made comb of wax even when fed on sugar alone. My own experience teaches me that a small stand, say two feet long and ten or twelve inches in diameter from side to side, is best adapted for both the safety and increase of the bee; when full of comb it excludes the chilling winter atmosphere.

With regard to the proper time and way to take your honey I would prefer killing in the the winter or robbing in the spring. Never

drive your bees unless you wish to drive yourself out of stock. If you desire to hunt wild bees find where they drink water or honey and then take their course, move on in a straight line until you have passed them, which you will know by the bees changing their direction. Go back on a straight line, put your ear on the tree, and then knock it; if the bees are there you can hear them roar distinctly.

W D. A. Deen.

Darlington Crops.

Messrs. Editors:—Perhaps a report of the present state of the crops from various parts of the State, would not be uninteresting to the readers of the "Farmer and Planter," and I would suggest the propriety of having several correspondents through different parts of the State to report on the crops. &c. With this view, allow me to make a short statement of the prospects of the crops of Darlington:

Corn is very small, and has suffered much from the cut worm, during the cold nights which still continue.

Cotton is also small, and red, presenting the most unfavorable prospect ever known in this section of country; it is quite dry and rain is much needed.

Wheat is just housed, the dry weather being favorable to this grain, it has yielded a very large crop. Oats and Rye are good.

Fruit—We have Apples in abundance; Peaches not so many and but few plums. In short the fruit crop is but small.

We had a very wet and cold spring; it is yet cool though now very dry. I think our prospects are very gloomy in Darlington, and I have visited most of the district lately.

Yours, &c., J. E. Byrd.

June 17, 1850.

A Response.

The following is an acceptable response made to a request by us that Agricultural Societies, throughout the South by their officers, would signify their existence and condition to us—our object as stated was an exchange of civilities in the hope to obtain information and establish a more frequent interchange among the agricuthural interests, of different sections of the country. This is certainly desirable and we hope the officers of Planters' Clubs in every district and county will yet communicate to us the experience and agricultural information they have:

Columbus, Ga., June 11th, 1850.

Messrs. Editors:—As Corresponding Secretary of the Muscogee and Russel County Agricultural Society, I am instructed by the President to tender you the thanks of the Society for the valuable donation of the Farmer and Planter. We will endeavor to increase its usefulness, and its circulation. It deserves success, and the South *must* sustain it. Our Society is yet in its infancy; but there is a germ in it which will make a vigorous manhood. Our Planters are men of wealth and intelligence, and they are daily becoming more and more convinced that, after all, there is no place like Home.—Help us, Messrs. Editors, to improve our homes; to throw a "garment of beauty" around them that shall chain us here, then shall we improve our moral and our social being, and Agricultural Societies and the Agricultural Press will be sought as a safe and certain guide to prosperity and happiness. I am, gentlemen, your very obedient servant, Charles A. Peabody.

Tea Culture.

To the Editors of the Farmer & Planter:—

Gentlemen—Presuming that the agricultural public are unacquainted with the time and manner of planting the Tea nuts, and are at a loss to determine by what mode of transit any supplies of nuts can be obtained, I presume a few practical suggestions will be acceptable to your readers.

You are aware that we have no Tea nuts of our own growth, and are therefore compelled, at present, to resort to foreign supplies, and must be governed accordingly in regard to the time of planting. All nuts are slow in vegetating. A fact, manifested by evidence derived from the growth of various descriptions of nuts planted in my own garden. The autumn, as a general rule, is undoubtedly the most suitable time for planting nuts when they can be obtained at the time of fruiting.—But we cannot obtain Tea nuts of last year's growth in China, gathered as they are in November, before spring, and therefore we must adapt our husbandry to the circumstances of the case. The Tea nut may be safely planted at any time between April and October. Its germination will then mainly depend upon the care and skill of the cultivator.

If the nuts are planted in the spring, or early part of the summer, they will probably germinate before autumn, and in that case, as the seedling is extremely delicate and tender, and not sufficiently hardy to resist excessive heat, or excessive cold, will require protection. If planted in Sept. or Oct., in this latitude, they will require the same winter protection as the seedlings. In either case a good coating of clean straw, hay or broomsedge, covered over the seedlings, or nuts, raised from immediate contact with the earth, by crossing a few small sticks and then throwing over them a small quantity of light mould, sufficient to guard the covering against the violence of winds, and to shield the seedlings and nuts entirely from the access of frost, will be ample protection, unthe wamth of spring, and the absence of frost require removal.

In the summer, beneath the influence of a hot and parching sun, a covering of straw is substantially the same as mulching the nuts instead of the roots of a fresh planted fruit tree. It checks evaporation from the earth, and the baking of the soil after watering. The Tea nuts I planted last october were protected in the manner described, and are now just ready, and are only waiting a warmer and more genial climate, to burst into sprouts.

In planting, a kind and rich soil of rather a sandy mould surface and a friable clayey subsoil should be chosen for a nursery. The ground should be spaded too feet deep because the tap-root of a seedling Tea plant, runs down like a carrot, and the collateral radicals shoot out at a subsequent period. When the seed bed is well dug and raked clear and smooth, the nuts should be planted about three inches deep and two or three inches apart. In droughty weather, water them moderately in the evening with a watering pot, just enough to keep the soil moist, without flooding it.

The Tea plant is naturally fond of water, and for a plantation the banks of a running stream, with a South-east to South-west aspect is the most favorable location.

With regard to inland transportations, I find the mail will take a small tin box, in which the nuts are packed, containing ten dozen or any smaller quantity. Perhaps this is the safest and most expeditious mode of inland carriage, in the absence of steam-boat, rail-road, and private opportunities.

My Tea plants in my small garden, are growing with great luxuriance and promise to become stately plants by autumn.—The leaves are rich and beautiful, for the number of plants, and were it expedient I would now make a small quantity of Tea, but it is not my design to pluck a leaf this summer. Your ob't serv't,

Junius Smith.

Greenville, S. C., May 15, 1850.

Sassafras versus Vermin.

A correspondent of the Cultivator says that bedsteads made of sassafras wood will never be infested with bugs, and that if bows for cattle, or the parts of their stalls nearest to them, and the poles of hen roosts are manufactured of this wood, the annimals will not be troubled with lice. We presume that the odor of this wood may be sufficient to warrant something like the result of which he speaks, on the same principle which camphor trunks will protect garments from moths.

Sweet Potatoes.

A writer in the last number of Skinner's Agricultural Journal, gives the following as his method of raising sweet potatoes, and says after satisfactory practice he prefers it to any other. He has tried the experiment for three years, and his potatoes have been much superior to those raised in the usual way. The mode is at least a new one:

"The yam potato vine blooms in August; in about a month thereafter they form a pod; the seed are then formed of about the size of sage seed, and of the same color. The pod should be noticed and gathered when ripe, or else they will soon drop. In the spring at the usual time of sowing seed, I sow them in the same way I sow cabbage seed. They will not come up quite as soon, but will continue doing so through the spring. The plant is small and delicate in appearance, and should be drawn in a wet season, with a little dirt attached to it, and transplanted. The leaf and vine have a different appearance from the potato usually, and the potato will be found to grow larger and smoother than usual."

From Prof. TUOMEY's First Biennial Report on the Geology of Alabama.

Geology.

THE science of Geology is mainly derived from the recorded results of accurate observations, made by competent persons, in all parts of the world. It examines into the mineral composition of rocks, their structure, order of succession, and distribution on the earth's surface. It points out the connection between rocks and soils, and is thus at the very foundation of agricultural science. A knowledge of the structure of rocks, presents the miner with the only reliable guide in his search for useful minerals; whilst both the architect and engineer may derive important aids from this science.

This is the mere utilitarian view of the science; but Geology has higher, nobler aims than these: it enables us to contemplate, through a succession of ages, the effects of those changeless laws impressed upon matter by the Creator, and which are still modifying the earth's surface.—It traces step by step, the progress of life upon the globe, shows us that whole races of animated beings once lived, and passed out of existence, to be succeeded by others that, in like manner, after fulfilling their destiny became extinct, and were followed by still other races; it enables us to perceive, in all these revolutions, design, goodness, wisdom and power; in a word evidences like these make up a history of a high and ancient order, unfolding records of the operations of the Almighty Author of the Universe, written by the finger of God himself, upon the foundations of the everlasting hills."

STRUCTURE OF THE EARTH.

Our knowledge of the structure of the earth can, for obvious causes, extend directly only to a limited depth below the surface; the portion thus coming within our knowledge, is called the earth's crust. This crust, so far as we yet know, is made up of about sixteen simple substances, which distribute themselves under three groups:

Non-metallic substances.	1.	Oxygen,
	2.	Hydrogen,
	3.	Nitrogen,
	4.	Carbon,
	5.	Sulphur,
	6.	Chlorine,
	7.	Fluorine,
	8.	Phosphorus.
Metalic bases of the earths and alkalies.	1.	Silicium.
	2.	Aluminum,
	3.	Potassium,
	4.	Sodium,
	5.	Magnesium,
	6.	Calcium.
Metals.	1.	Iron,
	2.	Manganese.

These, by their combination, produce other substances; for instance, oxygen combines with the non-metalic substances, and forms water, acids, &c.; and with the bases of earths and alkalies, and forms such substances as silica, alumina, potash, soda, magnesia, and lime. These again unite with each other, and give rise to a few minerals, which, by their aggregation, make up rocks. The following table exhibits the name and composition of those minerals, which, in geological language, are called simple, to distinguish them from rocks which are aggregates:

Simple minerals.	*Composition.*
1. Quartz	Silica.
2. Felspar	Silica, alumina, iron, lime, potash or soda.
3. Mica	Silica, alumina, potash, iron, lime.
4. Talc	Silica, magnesia, iron, alumina.
5. Hornblende.	Silica, magnesia, lime, alumina, iron.
6. Argilite	Silica, alumina, iron, lime.
7. Chlorite	Silica, alumina, magnesia, iron.
8. Limestone	Carbonic acid and lime.
9. Gypsum	Sulphuric acid and lime.

The principal rocks that make up what is called the earth's crust, are—1. Granite; 2. Trap rock; 3. Gneiss; 4. Hornblende slate; 5. Mica slate; 6. Talcose slate; 7. Chlorite slate; 8. Clay slate; 9. Limestone; 10 Sandstone; 11. Conglomerate; 12. Loose superficial beds, composed of clay, sand, boulders, &c.

1. *Granite*—Is a crystalline rock, made up of the three minerals, quartz, felspar, and mica, each of which may readily be distinguished throughout the rock. It presents some varieties arising principally from the relative proportions of its constituent minerals: such as quartzose, micaceous, and felspathic granite, in which quartz, mica, or felspar abounds. Sometimes hornblende is substituted for the felspar, when the rock is called *sienite*. As a building material, where great strength and durability are required, few rocks equal granite. In the selection of it for this purpose, care should be taken to reject those blocks in which the feldspar has lost its lustre, which marks the incipient stages of disintegration.

2. *Trap rock.*—This is a compact, hard rock, of a dark, or greenish color, and dull lustre. It is composed principally of hornblende.

3. *Gneiss*—Has the same composition as granite, and differs from it only in being stratified. The mica is disposed in thin layers, between the other matertals, and hence the rock splits readily along these planes. It occurs near Wetumpka. Like granite it makes an excellent building stone, but should be laid on its bedding planes; a rule which applies to all the stratified rocks, and which is frequently neglected by our masons.

4. *Hornblende slate*—This rock resembles gneiss, but has the mica replaced by hornblende. It may be mistaken for gneiss or mica slate, in which the mica is black, but mica being highly fissile, can easily be determined.

5. *Mica slate.*—This is a schistose, or slaty rock, in which mica abounds. It passes into gneiss, from which it can only be distinguished by the prevalence of the mica.

6. *Talcose slate.*—This rock is known by its greasy or soapy touch. In general appearance, it resembles mica slate; but the want of elasticity in the talc is sufficient to distinguish it from the latter. It makes a pretty good fire stone for ordinary purposes, such as the lining of lime-kilns, &c. It occurs in Talladega in great abundance, and contains the gold mines and quarries of marble of that county.

7. *Chlorite slate.*—Like the preceding, this rock has a soapy touch, but is always of a decided green.

8. *Clay slate.*—This rock consists for the most part, of clay and silica; it has a slaty structure, and is frequently highly fissile. The shale of the coal-measures is a variety of this rock. The common cyphering slate is a good example.

9. *Limestone*—This well known rock is composed of carbonic acid and lime. It can always be detected by its effervescence, on the application of an acid.—Magnesian limestone, in addition to the lime, contains magnesia, and effervesces more slowly than the common varieties.

It possesses in a high degree, all the good qualities of an excellent building material. When sufficiently compact to take a polish, it is called marble. Our white, black, and variegated marbles, are only compact limestones.

10. *Sandstone*—As the name implies, is composed of grains of sand, held together by a silicious or argillaceous cement.—Scales of mica, and a considerable amount of argillaceous matter, are often present. The less argillaceous varieties make the best building materials.

11. *Conglomerate.*—Like sandstone, this rock is composed of particles of other rocks or minerals, cemented in like manner. The fragments, however, are large and generally water-worn. This variety is called pudding stone. When the fragments are angular, the rock takes the name of breccia. Sometimes the fragments are calcareous, but more frequently they are silicious.

12. *Loose superficial materials.*—These make up an important series in some regions. They in general consist of the

ruins of other rocks, often transported to a distance. The accumulations on the banks of rivers belong to these.

Horticultural Department.

Blight in the Pear Tree.

The May number of the Albany *Cultivator* contains the following notice of a new way of accounting for the pear-tree blight. The information concerning the periodical appearance of the disease, will attract the attention of the reader:

"We have received a communication from E. J. Jenet, of Greenwich, N. Y., in which he confidently advances the belief that he has discovered the true cause; but the length of his communication, and the narrow limits of the Horticultural Department of this paper preclude its publication entire. We can furnish only an abstract of his theory and observations. At or a little before mid-summer in the absence of a dew for several nights, he observed liquid drops falling from a pear tree which were found to proceed from minute aphides thickly covering the shoots or branches, and which had at first escaped notice from the identity of their color with that of the pear bark. The varnish which these insects exude, is regarded as a poison, absorbed by the pores of the bark, and preventing also the natural perspiration these insects were observed to continue for about ten days, when they disappeared. They are doubtless worthy the attention of fruit growers, and may under certain circumstances produce the death of the tree or branches; but it would be deciding from too limited data to say that this is made the usual or universal cause. Observations must be made with great judgment and accuracy through all parts of the country; through a long series of years; through all the variations of seasons; under all modes of cultivation, in all varieties of soil, and in various latitudes and climates, to enable any one to overthrow all previous opinions, and to establish a single theory applicable alike to all cases. But it is always interesting and useful to receive and record all the observations which may be made, relative to this formidable malady.

The following remarks of our correspondent relative to the periodical appearance of the fire blight, will be new to our readers, but we fear this rule will be regarded by some as established as much by its exceptions as by direct evidence:

'The same disorder prevailed among the apple, pear, and quince trees, on the banks of the Hudson in 1780, and continued its ravages until 1783. Twenty-two years after, (1802,) it again made its appearance, and continued its attacks for 4 or 5 years. Again 22 years elapsed, and in 1824 the same disorder prevailed, and lasted 4 years; and in 1846 we were once more sufferers from the same cause—our pear trees are still prostrated by its fatal attacks. This disease has been called by some "fire-blight."—It has been attributed to a "coup de soliel" one writer says it is produced by the *aphislanata*, a small insect covered by a fine white wool; the insects which came under my observation, are very different in every characteristic—so small as to escape notice in the first stage; and so similar to a fly at maturity as to mislead an inattentive observer."

Seedling Peaches.—A correspondent of the same periodical, Mr. Craighead, of Whitehall, in Cumberland county, Pennsylvania, gives the following account of his success in raising seedling peaches, both early and late, of some known and favorite varieties:

"Seven years ago, I went to Mr. Conklin's extensive peach orchard about the 20th September, and bought two bushels on purpose to get the seeds We sought the very best we could find; his early peaches were nearly gone; I took the last on the trees. That brought the ripening of them to the period I picked the peaches off, 20 days later. The Columbia was just beginning to ripen, I got the first ripe. That brought them two weeks earlier than the original. I planted the stones in rows, like planting potatoes, only covered shallow, following nature as near as I could. All brought the same sort in color and appearance. The result is, I have the Morris White all the season; the Columbia and Early York also, so that the whole space is now filled with the same species from last of August to 20th October, and any farmer, if he has one superior peach tree, can raise seedlings from it, and change to early and late, to last the whole season. But plant the stones when fresh, if you expect to raise a good tree, for if they become dry, you will get a poor peach something resembling the original, but worthless. My seedlings out of about 500 trees, which I planted seven years ago, contain only about four trees that are not as good, and many much better than the original.

Housewife's Department.

Raising Turkies.

One of our subscribers, who has a chance for those "light rangers" of the poultry to roam about, wishes some information on the mode of rearing them.

The turkey has some singular peculiarities in its nature, Among them may be mentioned its uncommon tenderness when young, and its uncommon hardiness when full-grown. Nothing in the poultry yard is so delicate and so easily destroyed when first hatched as the turkey. It is easily chilled past recovery by cold or storms, and yet, when full-grown, it will endure some of the most pelting storms of mid-winter. We have seen them roost high on the apple trees, during a fierce north-easter, with the snow and ice collecting on their heads, apparently unconcerned about shelter or protection. The first lesson, then, is to keep the chicks *warm* and *dry*. This seems necessary to them, even in their wild state, for we are told by western men, where wild turkies are found, that when they have a warm and dry spring, wild turkies are plenty in the fall; and when the spring is cold and wet, wild turkies are scarce in the fall. The next lesson is in regard to food. Neither give them too much nor too little. They should not be stuffed to death with Indian meal, nor starved by witholding what they should have. They will get along very well during the first ten or twelve hours after they leave the shell.—It is probable that; in their wild state, they first begin to feed by picking a scanty supply of insects and tender grasses. If you will observe the tame kind you will find them to be very expert in picking or catching insects. In order, therefore, to give them animal food as near like it as you can, some soft curds or boiled eggs may be given them, and, for a warming, stimulatory grass, some cives, or chives as some call them, may be cut fine and mixed with their food. Then a dough of Indian corn meal may be given them during the day, and thus carefully feed them and lead them along. If kept warm and dry, and judiciously fed, they will grow fast and be healthy until about two or three months old, when there comes on a critical period in their lives. The larger feathers then begin to grow, and there seems to be a change coming over the system, which often proves fatal.

A writer on the subject of raising turkeys, speaking of this, says:—"At the age of about two or three months occurs the most critical period in the life of a turkey, called "shooting the red," or the time when the head and neck acquire the reddish color of the adult. This crisis once past the birds may be regarded as past danger, and exchange the name of *chicks* for that of *turkey poults*. The only treatment necessary, when the bird is shooting the red, is *nutricious food*, and the addition of a small pinch of cayenne pepper. Bruised hempseed is also found serviceable."

After this change in their condition turkeys may be considered as fairly *toughened*. They will then, if you give them a range, provide for themselves, especially if grasshoppers are plenty. Grasshoppers are most abundant in dry seasons, and so are turkeys, and it is amusing to see a regiment of them marching back and forth in the fields, formed in regular platoons, and nabbing the grasshoppers which start up at their approach. They will devour immense numbers in the course of a day, and grow fat upon them. There is another species of food which they are very fond of, and which will fatten them well. It is the heads of common barn grass.—This grass is generally considered a nuisance to the farmer, but not so thinks the turkey. As soon as the seeds begin to

turn ripe, turn the gobblers in among it, and you will laugh to see them strip the heads off as they walk along, chatting among themselves, in the *curk*-ish dialect of the *too, too. tweet, tweets*, with great sociability. If it were not so difficult to eradicate this grass, it would not be a bad plan to cultivate it on purpose for a turkey pasture. If you could confine the grasshoppers in the same field, too, the turkeys would have an excellent chance to mix their bread and meat together, without travelling too far to do it.

When a boy, we used to see the farmers' wives put the following mode in practice, which, we have since found, was recommended to them by an old Swedish writer, in a work entitled "Rural Economy," which says:—"Many housewives have long despaired of success in rearing turkeys, and complained that the profit rarely indemnifies them for their trouble and loss of time; whereas, little more is to be done than to plunge the chick into *cold water*, the very hour, if possible, but at least the very day it is hatched, forcing it to swallow a pepper corn, after which let it be returned to its mother." How far the pepper corn, by warming and stimulating the system, might be useful to the youngster, we cannot say, but we never could see any benefit derived from the cold water bath. It was generally put in and out so quickly that it seldom was wet much, and we presume did neither good nor hurt.

The same author also observes, that "it must be remembered that this useful species of fowl are also subject to one particular disease while they are young, which often carries them off in a few days, When they begin to droop, examine carefully the feathers on the posterior extremity, and you will find two or three whose quill part is filled with blood; upon drawing these, the chick recovers, and after that requires no other care than what is bestowed on other poultry." He also recommends to keep them till two or four years old before carrying them to market, and to fatten them on sun flower seed.

In the Western States there is an acorn, from one of the many species of oaks which grow there, that is said to make them very fat indeed. Good Indian meal will make them fat enough, however, and, everything considered is as good an article to fatten them with as can be given them.—*Maine Farmer.*

Useful Receipts.

Tomatoes.

Messrs. Editors:—The following is a method of preparing Tomatoes so as to have them in their purity from one summer to another, by one who has tried it and found it effectual:

Gather your ripe tomatoes—pour boiling water on them—pour off the water and take off their skin—mash the tomatoes into a pulp and put it into common, strong, black bottles, filling them half way up the neck; cork them tightly, tying in the cork with strong pack-thread or wire. Put the bottles into a kettle of cold water, then heat the water and boil five hours. When cold enough to handle, dip the months of the bottles in warm pitch so as to effectually exclude the air—Set them away in your cellar to be used as wanted. Senex.

Pendleton, July 3, 1850.

Composition for Rendering Wood Incombustible.

I send you below, Messrs. Editors, a receipt for making a composition which will render wood entirely incombustible. It is very simply prepared, and quite easy of application, being used the same as paint, with an ordinary brush. A good coat of it applied to the floor underneath stoves would be an excellent precaution.

Take a quantity water, proportioned to the surface of wood you wish to cover, and add to it as much potash as can be dissolved therein. When the water will dissolve no more potosh, stir into the solution, 1st. a quantity of flour paste of the consisteucy of common painters' size; 2nd, a suffieient quantity of pure clay to render it of the consistency of cream.

When the clay is thus mixed apply the preparation as before directed to the wood; It will secure it from the action of both fire and rain. In a most violent fire, wood thus saturated may be carbonated, but will never blaze.

If desirable, a very agreeable color can be given to the preparation by adding a small quantity of red or yellow ochre.

It might also ee useful for you to mention in your paper, especially at this season of high winds, that a handful or two of sulphur thrown on the fire when the chimney is burning out, will almost instantaneously extinguish the flames.

[*Buffalo Com. Adv.*

White Wash.

In an exchange, we find a receipt for making the white wash used on the east end of the President's house at Washington, and which is said to be superior to any other:—

Take elean lumps of well burnt lime, (say five or six quarts,) slaek the same with hot water in a tub, (covered to keep in the steam,) pass it in the fluid form through a fine seive; add one fourth of a pound of whiting or burnt alum, pulverized; one pound of good sugar; three pints of rice flour, made into a thin and well boiled paste, on one pound of clean glue, dissolved by first soaking it well, and then putting it into a small kettle, which again should be put into a larger one filled with water, and placed over a slow fire. Add five gallons of water to the whole mixture.

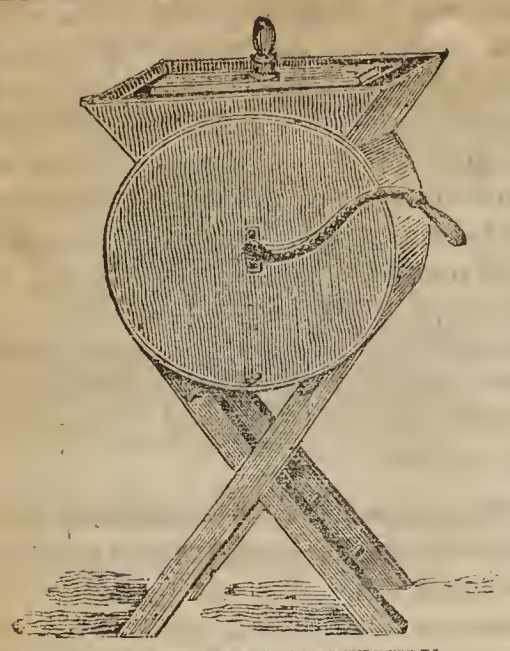
This wash is applied, where particular neatness s required, with a painter's brush. It must be put on while warm, if upon the outside of the building—if within doors, cold. It will retain its brilliancy for many years. There is nothing of the kind will compare with it. About one pint of the mixtnre will cover a square yard upon the outside of a house if properly applied. If a larger quantity than five gallons is wanted, the same proportions must be observed in preparing.—Coloring matter may be added, to give it any required shade.

To Preserve Hams through the Summer.—Make a number of cotton bags a little larger than your hams; after your hams are well smoked, plaee them in the bags; then get the very best kind of sweet well made hay, cut it with a knife, and with your hands press it well around the hams in the bags; tie the bags with good strings, put on a card of the year to show their age, and hang them up in the garret or some dry room, and they will hang five years, and will be better for boiling than on the day you put them up. This method costs but little, as the bags will last for years. No flies or bugs will trouble the hams if the hay is well presed arouud them, the sweating of the hams will be taken up by the hay and the hay will impart a fine flavor to the hams. The hams should be treated in this manner before the warm weather sets in, and the present time is about the right season in many plaees.

Cure for Hollow Horn.—The following simple remedy for hollow horn, I have reeeived from a reliable souree, but have not had an opportunity to test it. Take soft soap and salt mixed in equal portions, and rub smartly the roots of the horns, and along the whole length of the baek to the end of the tail, with the mixture. Repeat occasionally, for a few days if necessary.

Remedy for the Poll-Evil.—One pint of spirits of turpentine, one half vial oil of spike, an ounce Spanish flies, one ounce sal ammoniac pulverized, mix altogether in a jug or bottle: let it stand about a week, and shake it well before using; make it almost boiling hot, after which pour it on the part afflicted then heat in with a hot iron. Repeat this operation once a week for three weeks, keeping the horse in the dry.

To Remove Warts.—Wash them with a strong solution of pearlash and let it dry on the warts. If this is done two or three times, the warts will disappear.



CYLINDRICAL CHURN.

It has been found by those, who have had experience in the business of butter an cheese making, that it is very important to have the vessels in which the milk is kept attended to with a great deal of care. Scrupulous nicety should be paid to the purity of everything with which the milk comes in contact. Glass pans, being more easily kept in order and also from their non-conducting nature are better than tin or earthen ware, and are getting into general use. The churn is also important, and we recommend those engaged in butter making to any considerable extent to throw away their "old pots," and supply themselves with an improved churn. By having such a one as represented above, labor will be saved, and better butter made.

The Farmer.—It does one's heart good to see a merry round-faced farmer. So Independent, and yet so free from vanities and pride. So rich and yet so industrious—so patient and persevering in his calling, and yet so kind, social and obliging. There are a thousand noble traits about his character. He is generally hospitable—eat and drink with him, and he won't set a mark on you, and sweat it out of you with a double compound interest, as some I have known will—you are welcome. He will do you a favor without expecting a return by way of compensation—it is not so with every body. He is generally more honest, sincere—less disposed to deal in a low underhand cunning than many I could name. He gives to society its best support—is the edifice of government- he is the lord of nature. Look at him in homespun and gray black—gentlemen, laugh if you will—but believe me, he can laugh back if he pleases.

CONTENTS OF THIS NUMBER.

TO POSTMASTERS.

There are thousands to whom the subject needs only to be suggested, who would subscribe to a paper devoted to Southern Agriculture at the low price of one dollar a year. Your public position as well as other causes make you, persons, frequently conferred with upon the merits of newspapers and public journals. Situated as you are at central points in every part of the country, you have opportunities to exercise very great influence for the general good. The Post office department at Washington, looking to public convenience, has by its decisions encouraged your kind offices to the Press. We therefore, respectfully, solicit that you act as agents in your neighborhood to procure subscribers for the "Farmer and Planter." We would willingly allow commissions, for money collected from subscribers obtained in this way, if we had any idea they would be acceptable.

SEABORN & GILMAN.

GREAT SALE OF SHORT HORN CATTLE.

The subscriber will offer for sale without reserve, at public auction, on

Tursday, the 29th day of August next, at at 1 o'clock, P. M., on the farm of J. F. Sheafe, Esq., at New Hamburg, Duchess Co., New York, about 35 head of Short-horn cattle, including cows, heifers, and calves.

This herd was mostly bred by Mr. Sheafe, and I do not hesitate to say I think it *one of the very best* in the United States; and I have seen and particularly examined nearly all of them. Great attention was paid in the commencement of this herd, to the milking properties of the animals forming it; and this together with fine points and good growth and constitution, have been steadily kept in view in its breeding. There is but one cow in the herd which gives less than 20 quarts per day, in the best of the milking season, while one has given over 29 quarts per day and made 15 lbs. 3 oz. of butter per week, and two others have given respectively, 31 and 36 quarts per day. Their color is of the most fashionable and desirable kind—red, red-and-white and a rich strawberry roan—only one white cow in the lot. They are of good size and fine style, and all in calf to the superb bull Exeter, who will also be offered for sale at the same time.

Pedigree of Exeter.—Exter is of the Princess tribe of Shorthorns—was calved in June 1848, and bred by Mr. John Stevenson, of Wolviston, Durham England. He was got by Napier, (6.238,)—out of Jessamine, by Commodore (3.452)—Flora, by Belvidere, (1.706,)—Jessey, by Belvidere, (1.706,)—Cherry by Waterloo, (2.816) &c. See English Herd Book, Vol. V., for full pedigree.

Exeter was selected for Mr. Sheafe, by a first rate judge of Shorthorn stock and was considered one of the *very best bulls* in England; and it is believed that his superior, if even his equal, has never been imported into this country. He carries an enormous brisket for his age, and his style, handling, and quality are of the finest kind. His color is mostly a beautiful yellow-red, which is a bright red with a fine gold or saffron undertinge, arising from a rich yellow skin. He is the *only bull of this peculiarly desirable red*, ever imported into America. Calves got by him, out of this herd of cows, will fetch a high price the moment they are dropped.

Mr. Stephenson, the breeder of Exeter now stands at the head of his class in England, and his stock is of the highest repute. It is entirely of the Princess tribe, and traces its pedigrees without any alloy or Galloway blood, back to pure Shorthorns, for upwards of *two hundred years*; a matter of no small consideration to those who wish a *superior fresh cross*.

Catalogues of the above stock, with pedigrees in full, are now ready for distribution.

Southdown Sheep.—A choice flock of this superior breed of mutton sheep will be sold on the same day as above.

Suffolk Swine.—One boar and several breeding sows and pigs, of this fine breed of swine.

Working Oxen—A handsome pair of red working oxen.

A. B. ALLEN,
189, Water st., New York.
